OFFICE OF THE DEAN, FACULTY OF AGRICULTURE & DIRECTOR OF INSTRUCTIONS,
MAHATMA PHULE KRISHI VIDYAPEETH, RAHURI – 413722, DIST-AHMEDNAGAR (MS)

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TENDER RATE CONTRACT FOR LABORATORY EQUIPMENTS / INSTRUMENTS, CHEMICALS, BIOCHEMICALS, GLASSWARES, PLASTIC WARES AND ENZYMES

(VALID UP TO 31st MARCH, 2010).

Sr. No.	Name of Item	Specification
1.	Advanced Image analyzing system with software CCD camera for Spray Droplet Image Analysis	Manufacturer – Expert Vision Lab Pvt. Ltd., Mumbai make / DNR Bitron System with high resolution camera, USB connection Zoom lens, close-up lens, calibration scale Duel incident light illuminator Software for image analysis and process Computer – Intel p4 with printer **OR** BIOVIS IP 2000 Image analysis system for spray droplet analysis./ MOTIC BA 200 Trinocular Research Microscope
2.	Aerosol Instruments	An aerosol observation system with primary aim of Atmospheric Radiation measurement (ARM) platform for *in situ* aerosol measurements at the surface. The principal measurements are those of the aerosol absorption and scattering coefficients as a function of the particle size and radiation wavelength. Additional measurements include those of the particle number concentration, size distribution, hygroscopic growth, and inorganic chemical composition. i. Alpha/ beta aerosol Monitor for continuous monitoring of aerosol bound activity in air by detector assembly that includes a leak proof aerosol filter and a sealed countertube with lead shielding ii. Realtime Particulate Monitor: To measure mass concentration of airborne dust; smoke; haze; mist and fumes, while providing continuous realtime reading of air; handheld portable instrument with particle sizing monitor/ data logger and dual impact wavelength nephelometer; For particle size range 30nm to α-m diameter; with 72 hr rechargeable battery iii. High Volume Air Sampler: For high volume particulate sampling of wide size ranges iv. Aethlometer: For measurement of black carbon particulate materials. v. Biological aerosol sampling collector: For effectively collecting particles for determination of airborne biological threats vi. efficient inlet system that samples particles up to 8 um diameter vii. Humidified nephelometers to allow better characterization of vertical profiles of aerosol hygroscopic growth.

3.	Aflatoxin and Food Pathogen Detection Kits ISO Grid System	**NEOGEN CORP INC, USA make** New rapid detection test kits for rapid detection of mycotoxins and presence of pathogens like salmonella, E-coli, shigella, listeria and others
4.	Air Dryer	50 kg capacity+ Air Receive : Vertical/ Hortizontal Installtation Capacity : 100 Lit to 10 m^3 Compressors - 20 Hp Construction - Steel and built to IS – 2825 or ASME cole Section VIII Working Pressure – 75 psig to 750 psig After Cooler : Capacity – 10 CFM to 6000 CFM, Duplex filters - 10 CFM to CFM-FAD
5.	Air purifier	Filtrox AIRGAARD Air purifier MOC, MS CRCA Give air volume of 250 CFM – 425 CuNM/Hr, Blower is 93 watts with impeller for clean room operation Hepafilter of 0.3 micron to efficiency of 99.97% with speed regulator inlet outlet grill, UV tight, Ioniser caster tc.
6.	All Geared Head Lathe Machine	Turner make Mackpower, Rajkot Technical Data : 215 LX-2 Bed : Bed Type 2 V & 2 Flat L x 1825(6'), W x 280 (11") L x 125 mm Capacity : Height of Centre : 215 (8.45") Main spindle : Spindle Nose Ø 61.85 mm Speed: No.of spindle speed : 8 Electicals: Motor Power 3 HP / 2.25 Kw Weight (Approx) : 900 kg , Floor space occupied: 2125 x 700
7.	Amyjlograph "E"	Brabender make Built in temperature and speed control measuring system, Bowl and pin type stirrerr setting of test conditions, measurement and evaluation. Speed : 75 min^{-1} Amylograph software 72200, colour RAL : 9002, main supply 230 V AC single phase 50Hz
8.	Analytical Balance (0.001mg)	Sortorius AG Germany, Model No. BT 2245. Capacity :220gm, Readability : 0.1mg , Repeatability :≤ ± 0.1 mg, Response Time :≤ seconds Pan size : Weighing Pan with ∅ 80mm Monilithic block technology Linearity : ≤ 0.2mg Weighing Technology : Monolithic Block weighing technology, Calibration : Built-in motorized Calibration Display : LCD display Built in Application : Dynamic weighing piece counting percentage weighing Elec power requirements:230V/50 Hz.

9.	Analytical Electronic Balance	Bench top analytical electronic balance; Capacity: Above 100 gm; Sensitivity: 0.001 mg; Calibration: Automatic, motor driven; for highest weighing accuracy Taring: Electronic, full range; Others: Overload protection, RS232 bi-directional interface; Provided either glass enclosure or draft shield; Sealed keypad for spill protection, dynamic temperature compensation
10.	Analytical Weighing Balance	**Sortorius AG Germany, Model No. BT 224 S** Capacity: 220 gm, Readability: 0.1 mg., Repeatability: ≤± 0.1 mg, Response Time : ≤ seconds Pan size: Ø 80 mm , Weighing Tecjmp;pgu: Monilithic block technology Linerarity : ≤± 0.2 mg, Weighing Technology: Monolithic Block weighing technology, Calibration: Built-in motorized calibration, Diplay: LCD display, Byuilt in Application: Dynamic weighing, Piece counting, Percentage weighing, Elec. Power requirements: 230V/50Hz **OR** **Shimadzu, Japan Make** : **Model AY 220** Capacity 220gm, Readability 0.1 mg, Minimum Display 0.1mg, pan size Ø 80dia **OR** **Anamed make : Model AA 2200** Cap. 220 gm Sensitivitym / Readability : 0.0001 g (0.1 mg) Pan size: 100 mm (Round SS) Fluroscent Display with internal auto calibration
11.	Arc-GIS Software	Geographical Information System-software, ARCGIS 9.2/9.3 and advanced versions MASTER LABKIT Primary license, ***Make: ESRI***, **Training essential. *1 Primary + 1 Additional License**
12.	Aspee Mke HTP Double Piston Pump	8 mm spray high pressure HDPE pipe, Brass connectors, HTP stand, 3 HP "Kirloskar make" 3 phase electric motor, Pulley, belt and accessories, Panel Box including L& T starter & MCB for HTP Pump

13.	APC Smart UPS	**MODEL RT 1000 VA 230 V** (APC Smart-UPS RT, 700 Watts / 1000 VA, Input 230V / Output 230V, Interface Port DB-9 RS-232, Smart Slot, Extended runtime model, Rack Height 2U , **Includes**: CD with software, Smart UPS signaling RS-232 cable, User Manual) **OR** **Model : RT 2000VA 230V** (APC Smart-UPS RT, 1400 Watts / 2000 VA, Input 230V / Output 230V,Interface Port DB-9 RS-232, Smart Slot, Extended runtime model, Rack Height 2U , **Includes:** CD with software, Smart UPS signaling RS-232 cable, User Manual) **OR** **RT 3000VA 230V** (APC Smart-UPS RT, 2100 Watts / 3000 VA, Input 230V / Output 230V,Interface Port Smart-Slot, Extended , runtime model, Rack Height 3 U, Includes: CD with software, Smart UPS ,signaling RS-232 cable, User Manual) **OR** **RT 6000VA 230V No** Batteries (APC Smart-UPS RT, 4200 Watts / 6000 VA, Input 230V / Output 230V,Interface Port DB-9 RS-232, Smart- Slot, Extended runtime model, Rack Height 3U Includes: CD with software, Smart UPS signaling RS-232 cable, User Manual) **OR** **RT 10000VA 230V No** Batteries (APC Smart-UPS RT, 8000 Watts / **10 K VA**, Input 230V / Output 230V,Interface Port DB-9 RS-232, RJ-45 ,10/100 Base-T, Smart-Slot, Extended runtime model, Rack Height 6 U ,Includes: CD with software, Service ,Manual, Smart UPS signaling RS-232 cable, User Manual, Web/SNMP Management Card) **OR** **RT 15000VA 230V No** **OR** **RT 20000VA 230V No**

14.	Atomic Absorption Spectrophotometer	LABINDIA Make Flame Version AAS LABINDIA make Flame & Graphile Version Analyet model LCD display Essential items required to run the system Optional items required to run the system/ **OR** **RAYLEIGH Make** **Technical Specification** Wavelength range :190-900n Background correction : The D2 lamp background correction capability at 1A is better than 30 times. : The S-H background correction capability at 1.8A is better than 30 times. Lamp turret : 6-lamp turret (Two high performance HCLs can be mounted on the turret to increase the sensitivity in flame analysis,); auto alignments; auto fine adjustment; fully automated scan and peak- picking Lamp power supply mode : Powered by two pulses: 400Hz wide pulse and 100Hz narrow pulse simultaneously. Monochomator : Czerny-Turner design grating monochromator Grating : 1800 lines/mm Focal length : 277mm Blazed Wavelength : 250nm Spectral Bandwidth : 0.1nm, 0.2nm, 0.4nm, 1.2nm Flame/Graphite Furnace : Flame and graphite Furnace atomizer automatic changeover Detection Detector : Photomultiplier with high sensitivity and wide spectral range. Temperature range : Room temperature -3000^{0}C Light control temp.range : 1500^{0}C-3000^{0}C, temp. auto-correction Temp. control accuracy : $\leq$1^{0}C Condition reading : With model function Result printing : Measurement data and final analytical report printout. Heating rate : 2000^{0}C/s

		A) Chemito AA 203 **Technical Data** Spectral Range : 190-900nm, Accuracy : ± 0.5 nm, Photometric range : 0 to 2.5ABS Integration Time : 1-99 sec., Power : 230V ± 10%, 50 Hz Dimension : 20cm x 76cm x 25 cm (Wx L x H) **Accessories:** a. Assembly N_2O Burner AAS complete b. Background corrector, c. D-2 Lamp d. Compressor for AA 201 **e.** Exhaust Hood SS with Fan **f. Hollow cathode lamps:** g. 1) Lead (Pb), h. 2) Zinc (Zn), i. 3) Copper (Cu), j. 4) Iron (Fe), k. 5) Cadmium (Cd). l. 6) Chromium (Cr), m. 7) Aluminium (Al), n. 8) Manganess (Mn), o. 9) Boron (B), p. 10) Nickel (Ni) **OR** **B) Perkin Elmer make** **1. B315-0060:** Perkin Elmer Model Analyst 200 Atomic Absorption Spectrometer with two double beam echelle optics combines with solid state detector, fully automated gas controls and integrated safety checks, new touch screen interface with colour LCD display, leaveraging the power of Microsoft Windows, with 8 calibration standards, and 7 calibration algorithms, built in EDL power supply, quick lock design automatically connects and disconnects gas lines. The entire optical design is housed in a shield to protect from corrosive lab environments and also can be purged for optimum performance in extremely dirty environments. All parameters including burner, flame ignition, gas pressure, flow rates, status & many other including system checks are controlled and monitored through the touch screen user interface. Both alphanumeric and graphic data can be printed with optional printer (requires but not included). 230V & 50 Hz. **2. N040-0100:** Nitrous Oxide Burner Head. Required when using nitrous oxide-acetylene flames for t he determination of refractory metals. Can also be used with air-acetylene flames. **3. 0303-0349:** Nitrous Oxide gas pressure regulator. Includes a 12-ft colour coded hose assembly plus CGA standard fittings for connection to gas cylinders. **4. 0303-0106:** Acetylene gas pressure regulator, Includes a 12-ft colour coded hose assembly plus CGA standard fittings for connection to gas cylinders. **5. 0303-0314:** Air compressor. Delivers 1.8 cfm (50 L/min) at 60 psi (4.2 kg/cm^2). Mounted on a 10-gallon (38 liter) tank built to ASME high strength specifications. For 230V, 50 Hz.

		6. N077-5325: Air Dryer/Filter **7. N077-0348:** Air hose tubing (Qty – 2 nos.) **8. Male Connector** **9. 0999-1423:** Line cord suitable for India **10.** 0990-2015 Neb 'O' Ring **11. 0990-2219** Viton O-Ring Burner head **12 0303-0135:** Nebulizer cleaning wires. **13. B050-0748:** O Ring **14. B050-1236:** O Ring **15. N305-0108:** Coded H C Lamp – B. **16.N305-0114:** Coded H C Lamp – Ca **17**. **N305-0118:** Coded H C Lamp – Co. **18. N305-0119:** Coded H C Lamp – Cr. **19. N305-0121:** Coded H C Lamp – Cu. **20. N305-0126:** Coded H C Lamp – Fe. **21. N305-0144:** Coded H C Lamp – Mg. **22. N305-0145:** Coded H C Lamp – Mn. **23. N305-0146:** Coded H C Lamp – Mo. **24. N305-0148:** Coded H C Lamp – Na. **25. N305-0152:** Coded H C Lamp – Ni. **26. N305-0172:** Coded H C Lamp – Se. **27. N305-0191:** Coded H C Lamp – Zn. **28. N305-0634:** E D Lamp – Mercury **29. N305-0657:** E D Lamp – Lead **30. 0303-0997:** System 2 EDL Driver Assembly. Driver assembly is required for each position in the lamp mount where a system 2 EDL is to be used. **Essential items required to run the system** 1. Exhaust Hood System with S S tubing for Atomic Absorption Spectrometer 2. Acetylene gas cylinder 3. Acetylene gas 4. Nitrous Oxide Gas Cylinder 5. Nitrous Oxide Gas 6. Printer 7. 3.5 KVA Stabilizer with under and over protection

		Optional Items: **Following items to be selected as per requirement and not included total Ex-work value. Discount @ 25% is applicable on all the items below.** **12 . 0990-2147** End Cap O-Ring **13. B315-0531** Spacer **14. 0303-1573** Burner Head Cleaning Tool **15. 0303-0997:** System 2 EDL Driver Assembly. Driver assembly is required for each position in the lamp mount where a system 2 EDL is to be used. **16. N305-0108:** Coded H C Lamp – B. **17.N305-0114:** Coded H C Lamp – Ca **18**. **N305-0118:** Coded H C Lamp – Co. **19. N305-0119:** Coded H C Lamp – Cr. **20. N305-0121:** Coded H C Lamp – Cu. **21. N305-0144:** Coded H C Lamp – Mg. **22. N305-0145:** Coded H C Lamp – Mn. **23. N305-0146:** Coded H C Lamp – Mo. **24. N305-0148:** Coded H C Lamp – Na. **25. N305-0152:** Coded H C Lamp – Ni. **26. N305-0172:** Coded H C Lamp – Se. **27. N305-0191:** Coded H C Lamp – Zn. **28. N305-0634:** E D Lamp – Mercury **29. N305-0657:** E D Lamp – Lead **30. N305-0126:** Coded H C Lamp – Fe. **Optional Items:** **Following items to be selected as per requirement and not included total Ex-work value. Discount @ 25% is applicable on all the items below.** **Essential items required to run the system** 1. Exhaust Hood System with S S tubing for Atomic Absorption Spectrometer 2. Acetylene gas cylinder 3. Acetylene gas 4. Nitrous Oxide Gas Cylinder 5. Nitrous Oxide Gas 6. Printer 7. 3.5 KVA Stabilizer with under and over protection

		Optional Items: **Following items to be selected as per requirement and not included total Ex-work value. Discount @ 25% is applicable on all the items below.** 31. N930-0106 Boron Solution 32. N930-0108 Calibration Standard - Ca. 1 no 33. N930-0112 Calibration Standard - Cr. 1 no. 34. N930-0113 Calibration Standard - Co. 1 no 35. N930-0114 Calibration Standard - Cu. 1 no. 36. N930-0126 Calibration Standard - Fe. 1 no. 37. N930-0128 Calibration Standard - Pb. 1 no 38. N930-0131 Calibration Standard - Mg. 1 no. 39. N930-0132 Calibration Standard - Mn. 1 no 40. N930-0133 Calibration Standard - Hg. 1 no. 41. N930-0134 Calibration Standard - Mo. 1 no. 42. N930-0136 Calibration Standard - Ni. 1 no. 43. N930-0149 Calibration Standard - Se. 1 no. 44. N930-0152 Sodium Standard Solution 1 no. 45. N930-0168 Calibration Standard - Zn 1 no. 46. N305-208 Coded Multielement H C Lamp CA-MG ZN – 1 no. 47. N305-0212 Coded Multielement H C Lamp CU-FE-MN-ZN – 1 no.
15.	Augur Base Form Fill and Seal Machine Powder Autoline	A powder filling machine Filling range 05 to 1000 gm Auto sealing device Suitable for filling powders

16.	Autoclave	Horizontal : Model- Cylinderical, Acm-32064-Make – Acmas Technolo **Standard features :** **Diameter (mm) - 500 mm, Depth (mm) -900 mm, Volume (Liters)-185 Liters, Load (KW)-10 kw** Hi-tech radial lock locking system. Steam Release valve of Stainless Steel and huger grade spring loaded safety valve with water Indication Gauge with stainless steel enclosure High accuracy and reliable pressure gauge with Multiple operating valve for the control of the sterilization cycle. Accidental Vacuum Break Device Water Level Cut Off Device CUT Hammer contractor for long trouble free usage Specially designed ISI marked stainless steel heaters Plug screen to prevent line choking due to sediment discharge Highly accurate temperature and pressure gauges for boiler chamber and jacket **OR** **Model-** Triple Walled Acm-32063A, **Make – Acmas Technology** **Technical Features – (Inner Dimensions) Diameter (mm)-550mm, Height (mm)-750mm, Volume (Liters)-152 ltrs** Hi-tech radial lock locking mechanism for ultimate ease of operation and safety. Steam Release valve of Stainless Steel ensuring a long life of the equipment. Huger grade spring loaded safety valve of brass, duly chrome plated. Water Indication Gauge with stainless steel enclosure High accuracy and reliable pressure gauge. Lid opening mechanism: Foot operated (Paddle) lift **OR** 113 lit Vertical Autoclave, 3.5 K W heater **OR** Equitron make Model 7431 DT (35 x 55 cm) Heater 2.25 kw/ Lab Hosp make

17.	Autoclave Vertical Model	**Model M.S.I. 41** **Working size :** 12" dia x 20" ht. Rating 3.0 K.W.
		Model M.S.I. 41 **Working size :** 14" dia x 22" ht. Rating 3.0 K.W
		Model M.S.I. 41 **Working size :** 18" dia x 24" ht. Rating 3.0 K.W
		Model M.S.I. 41 **Working size :** 22" dia x 30" ht. Rating 3.0 K.W
18.	Automated Liquid Handling System	**Automated Liquid Handling System for ELISA Application, Make: Tecan, Austria** Automated liquid handling system suitable for fully automated 6 plates or more ELISA processing application. It has to be open type platform. Automated Liquid handling system with independent robotic arms for Pipetting and second robotic arm for plate transportation to carriers, Microplate Reader, washer and other integration modules in the front, back and two sides on the platform. Platform should process minimum 6 or more plates per batch. All steps have to be done by robot. The quoted system should be latest model introduced by the manufacture. 1. **Robotic Arm 1** - Pipetting tips (2 or 8 tip)with independent control on each tip for pipetting volume, aspiration and dispensing parameters .Flexible to use different types of source and Destination position say test tubes, eppendorf tubes and Microplate, it should have the flexible X-Y-Z direction movement. 2. **Robotic Arm** 2 – Griper arm to transport the micro plate, Deep well plates to carrier, storage vessels, Microplate reader etc.. It should have the 280 Deg flexible rotations to integrate the all modules into the platforms front, back and two sides.. The Liquid Handling arm should be incorporated with **2 tips or 8 tips ,** and the same should be capable of handling the volume ranging from **3µl to 25ml. Diluter based system with Different syringe capacities.** Each individual tip should have independent pipetting setup and connected to high-resolution diluter with to achieve the better **% CV. 10 ul - 1.5 % CV.** **Direct Drive Mechanism** on arms, less maintenance and Accurate Position for Tips locations. The system should have the flexibility to have the password protection in three levels user, admin and integrator. The Pipetting tips should have the Liquid detection features as standard for both Washable tips & Disposable tips. Disposable tip sensing functions for tip pick up, during operation up to the end of the process.

		Carrier to reagent: The following reagent carrier with required plastic consumable troughs to be quoted separately. • 200 ml,100ml,25ml trough to place different type of reagent required for DNA/Nucleic acid isolation and ELISA processing. • Carrier for test tubes and eppendorf tubes. • Disposable tips in the optional. • Please quote the trough and carrier required for ELISA processing set up. Also the system should have the facility to increase the throughput by upgrading the unit, such as hotels, shelf and with other storage vessels in the same platform to store microplate, filter plate etc., The system should have the microplate Reader with tunable wavelength in 1nm increment from 400-700nm as well as should have 8-channel microplate washer (unpressurized system) with the residual volume of less than 2ul for fully automated ELISA processing. It should be integrated with incubator with 6 position capacity for ELISA plate incubation. The system should be supplied with software for full access to application development environment as well as required Computer & Printer. Similar liquid handling system should be supplied installed minimum of 5 nos. in India and performance certificated and communication details should be provided. **OR** **Stillmet, India** Automated liquid handling system suitable for fully automated 6 plate or more ELISA processing application.It has to be open type platform. Automated Liquid handling system with independent robotic arms for Pipetting and second robotic arm for plate transportation to carriers, Microplate Reader, washer and other integration modules in the front, back and two sides on the platform. Platform should process minimum 6 or more plates per batch. All steps have to be done by robot The quoted system should be latest model introduced by the manufacture. 3. **Robotic Arm 1** - Pipetting tips (2 or 8 tip)with independent control on each tip for pipetting volume, aspiration and dispensing parameters .Flexible to use different types of source and Destination position say test tubes, eppendorf tubes and Microplate, it should have the flexible X-Y-Z direction movement. 4. **Robotic Arm** 2 – Griper arm to transport the micro plate, Deep well plates to carrier, storage vessels, Microplate reader etc.. It should have the 280 Deg flexible rotations to integrate the all modules into the platforms front, back and two sides.. The Liquid Handling arm should be incorporated with **2 tips or 8 tips ,** and the same should be capable of handling the volume ranging from **3µl to 25ml. Diluter based system with Different syringe capacities.** Each individual tip should have independent pipetting setup and connected to high-resolution diluter with to achieve the better **% CV. 10 ul - 1.5 % CV.**

		Direct Drive Mechanism on arms, less maintenance and Accurate Position for Tips locations. The system should have the flexibility to have the password protection in three levels user, admin and integrator. The pipetting tips should have the Liquid detection features as standard for both Washable tips & Disposable tips. Disposable tip sensing functions for tip pick up, during operation up to the end of the process. **Carrier to reagent :** The following reagent carrier with required plastic consumable troughs to be quoted separately. • 200 ml,100ml,25ml trough to place different type of reagent required for DNA/Nucleic acid isolation and ELISA processing. • Carrier for test tubes and eppendorf tubes. • Disposable tips in the optional. • Please quote the trough and carrier required for ELISA processing set up. Also the system should have the facility to increase the throughput by upgrading the unit, such as hotels, shelf and with other storage vessels in the same platform to store microplate, filter plate etc., The system should have the microplate Reader with tunable wavelength in 1nm increment from 400-700nm as well as should have 8-channel microplate washer(unpressurized system) with the residual volume of less than 2ul for fully automated ELISA processing. It should be integrated with incubator with 6 position capacity for ELISA plate incubation. The system should be supplied with software for full access to application development environment as well as required Computer & Printer. Similar liquid handling system should be supplied installed minimum of 5 nos in India and performance certificated and communication details should be provided.

19.	Automatic Fertigation Unit	1) A. Controller (16 outputs / 8 digital inputs / 8 Analog inputs) Specifications: Wide display, Inbuilt protection for inputs and outputs, having the capacity to control irrigation, fertigation with EC / pH control and Climate Control System. Galcon make or equivalent Quantity: 01 No B. Controller (32 outputs / 8 digital inputs / 14 Analog inputs) Specifications: Wide display, Inbuilt protection for inputs and outputs, having the capacity to control irrigation, fertigation with EC / pH control and Climate Control system. Galcon make or equivalent Quantity: 01 No C.) Controller (40 outputs / 8 digital inputs / 32 Analog inputs & Facility to Expand further) Specifications: Wide display, Inbuilt protection for inputs and outputs, having the capacity to control irrigation, fertigation with EC / pH control and Climate Control system. Galcon make or equivalent Quantity: 01 No 2) Automatic fertigation unit: Specifications: This unit must have the capacity to connect with the controller mentioned in Item No. 1. Must be fully controlled from the controller. Unit must include components like appropriate booster pump and its associated control panel to facilitate fertigation, EC / pH monitor & sampling unit, venturies (one for acid and two for fertilizers), other related accessories and fittings. Mixer Type : Max Flow.: 45 M3/Hr and 60 M3 / Hr Bypass Type : Max Main Line Flow : 45 M3/Hr Quantity: 01 No 3) Computer and Software: The software must have the capability to display and program the controller via computer. Also, it must have data logging facility. 100 Mtr communication cable to be provided. For more distance additional cable / repeaters are to be provided as per requirement. Suitable computer must be provided Quantity: 01 No each (software and computer) 4) Solenoid valves Specifications: Valve Make : Hunter or equivalent Size : 1.5” & 2” as required Inrush Current : 475 mA. Operating voltage : 24 VAC Holding Current : 230 mA. Quantity : As Required

		5) Soil moisture sensors: Depth: 30 cm , 60 cm , 90 mm Switching type: Digital and Analog Quantity: As Required 6) Weather monitoring system: System should be compatible with the controller. The weather station must be connected to the controller and must be capable provide values solar radiation, rainfall, wind speed and wind direction. Quantity: 01 No Temperature& relative humidity Sensor for Inside & Out Side : As required 7) Drainage Sampling System : Should measure quantity , Ec-pH of drainage and and change Irrigation / Fertigation accordingly . No. of Sampling/ collection points as per requirement. 8) Power conditioning / stabilization system: ONLINE UPS 1KVA with 1 HR battery backup Quantity: 01 No 9) Accessories: Other accessories such as relays, auto / manual selector, lightning protection, earthing etc necessary for smooth running of the system must be provided. Quantity as suitable.
20.	Automatic Hybridization System	**Digilab Genomic Solutions** Slide Capacity should be 4 standard 1" x 3" microscope slides Hybridization Area should be 21.4 mm x 61 mm, With two Translucent, Polysulphone slide covers Operating Temperature should be 4°C to 99°C using Peltier Modules. In built heating block for Probe denaturation . Minimum Six Different Protocols should run Simultaneously Hybridization Volume should be 110± 10 ul Fluidic controlled Slide agitation and expansion channels facility should be there for uniform hybridization Automatic Slide Draining facility should be there. Probe injection must be done with Standard lab pipette PC Control with user friendly software.

		OR Automated slide processing system includes pre hybridization, washing, agitation and drying, to process up to 4 or 12 slides simultaneously and upgradable to 48 slides at a time. Precise incubation in the range 4 - 85 °C; on-board denaturation up to 99 °C . precision: + 0.5 Deg 4 reagent bottles, Pre-warming at 35 – 45 Deg to prevent perception of the buffer. The chamber active area is 18.0 x 50.8 mm. system should have the single, dual(2 arrays per slide) and quad (4-arrays per slide) area process capability, Chamber volume : 60 – 130 ul, Flow rate washing : 11ml/ltr/slide Liquid agitation in 6 different modes, on board slide drying with Nitrogen Gas. The sample holder to transfer the slide directly from Processor to Scanner. **Required computer with high Resolution 17" monitor & Printer should be supplied along with the system.**
21.	Automatic Milk Analyser	**Elico Milk Analyser Model BL-199** To determine contents of dairy products Analysis routines currently available for: whey, skim milk, raw milk, yoghurt, creams with 10% to 65% fat Analysis for: fat, protein, lactose, total solids, solids non fat (SNF) freezing point Analysis time 30 s (about 120 per hour for automatic model) Small sample volume: 9 ml, Automatic Zero-Set Optional: self purging, multi sample analysis, Network capability (100 Mbit/s) Low maintenance, optical parts durable, Delivered with all required accessories to start work immediately. **OR** ▪ To determine contents of dairy products – Analysis routines currently available for: • whey, skimmilk, rawmilk, yoghurt • creams with 10% to 65% fat – analysis for: • fat, protein, lactose, total solids, solids non fat (SNF) • freezing point ▪ Analysis time 30 s (about 120 per hour for automatic model) ▪ Small sample volume: 9 ml, Automatic Zero-Set, Optional: self purging, multi sample analysis ▪ Network capability (100 Mbit/s), Low maintenance, optical parts durable ▪ Delivered with all required accessories to start work immediately

22.	Automatic Weighing And Bagging Machine With Hopper, Stand Base	**AUTOMATIC WEIGHING AND BAGGING MACHINE WITH HOPPER, STAND BASE,** BIN, WEIGHING SYSTEM AND ITS CONTROL PANEL AND HEAVY DUTY CONVEYORISED BAG CLOSING MACHINE (Belt width 30 mm and length 3000 mm) : Indosaw Make : Model 6878A ➢ **Load Cell based.** ➢ **Microcontroller based electronic controller.** ➢ **Solenoid operated no need for compressed air.** ➢ **Gravity feeder.** **Weighing Range : 5 kg to 50Kg** Accuracy : ± 0.5% **Display : 7 Segment, 7 Digit LED display, Digit height 14mm.** **Output Speed : 4-5 bags per min.of 10Kg each** Bag : Open Mouth type. **Hopper Capacity : 600 kg** **Elevator with Electric Motor** Elevator Capacity : 3 Ton/Hour **Type of Elevator : Centrifugal Discharge Belt type** **Material to be handled : Free flowing Granular Material**

23.	Auto N Analyser Contd….	**Velp Scientifica , Italy Make : Model UDK 152** Programmable Automatic Distillation Unit with built-in AOAC approved colorimetric Titration with built in program for 30 Pre-defined official methods & 10 customizable method, CE Certified from an ISO 9001 company based on KJELDAHL TECHNIQUE consist of : **a) Digestion Unit for 20 tubes**: Programmable Digestor System temperature control by microprocessor, LCD display, RS 232 connectivity. **b) Distillation Unit**: Programmable Automatic Distillation Unit with integrated Colorimetric Titration System (30 standard pre-defined programs & 10 customizable programs – all parameters concerning distillation & titration are programmable) having automatic alkali addition, automatic water dilution, automatic boric acid addition and automatic distillation residue removal, steam flow regulation 10 to 100%. RS-232 connectivity to a printer or PC for data storage and should have alkali resistant technopolymer splash head for longer life. Should have maintenance free steam generator with patented titanium condenser for efficient heat exchange. Should include safety features like safety door, tube in place safety and water saving system. The method adopted by the instrument should be in accordance with AOAC, EPA, DIN & ISO. Complete with 1 Digestion test tube 300 ml, 1 collecting flask 250 ml, 1 pincer for test tube, inlet tube, set of tubes & keyboard. Distillation Time : Starting from 4 minutes Measuring Range : 0.1 to 200 mg Nitrogen Nitrogen Reproducibility : ≤ 1% Recovery : ≥ 99.5% Alkali Addition : 0-100 ml Dilute water addition : 0-200 ml Boric Acid addition : 0-100 ml Storage Capacity : Upto 3500 values Maximum Burette Standard Value : 25 ml Minimum Burette Standard Value : 0.002ml/step Display : Digital, LCD **OR** KEL PLUS Automatic Microprocessor based Nitrogen Estimation System **I. KEL PLUS AUTOMATIC MACRO BLOCK DIGESTION SYSTEM** (Suitable for Plants, Soils, water, food and feed, fertilizer and pesticide samples) **Model KES 06L / KES 12L / KES 20L** Six Place / Twelve Place / Twenty Place with Aluminium Macro Block Digestion System of 250 ml. capacity, **Fuzzy logic**

		Microprocessor based digital temperature controller, 50-450°C, Feather touch membrane keys, Casted aluminium alloy heaters**,** Easy auto fix spring clamps to hold manifold **with all essential accessories like SS Rack, Exhaust Manifold System, Kel Flow suction Filter pump, etc. Electrical Requirement: 230V/50Hz** **Accessories: Quote for Additional one set tubes, Racks and 3 Mtrs Viton Tube for Diacid and Triacid Digestion.** **Two Stage Acid Neutralizer Scrubber** with Self priming water recirculation pump inbuilt in 15 Litre FRP tank with essential accessories like alkali container, water container, etc. **Model KEL VAC KEL PLUS Automatic Distillation System** **Alternative 1:** **Microprocessor based Automatic Distillation System MODEL DISTYL EM** Microprocessor based feather touch membrane switches, Programmable Automatic Alkali Addition - 5-35 ml, Manual Alkali Addition – Continuous, **Perilstatic pump with Spring loaded rotor and anticorrosive pump head** for Alkali addition, Automatic Steam Generation, Distillation time: - Programmable - (3-21 minutes), Distillation Capacity: 12-20 samples per hour, Nitrogen Recovery : 99.5 to 100%, **Stainless Steel Steam Generator with water level view window,** Heater Power : 1500 W, Automatic low water level Acoustic Alarm & Auto water refilling indication, Non corrosive Nylocast Tube Rest, Electrical requirement - 220 V/50 Hz. Built in safety features. **Alternative 2:** **Superior Automatic Microprocessor based Distillation System Model ELITE EX** Distillation Capacity: 15 - 20 Samples/hr, Nitrogen Recovery > 99.5 %, Bright Digital real time count down, Programmable Automatic and Manual Alkali Addition, Programmable Automatic & Manual Steam Distillation, Automatic Sample Dilution, **Automatic Kmno4 Addition For Available Nitrogen,** Automatic Water Level Monitoring, **Stainless steel non corrosive steam Generator,** Builtin safety features like over temperature protection sensor, over pressure control valve, etc. **Alternative 3:** **Auto Sequencing Fully Automatic PC Compatible Distillation System Model CLASSIC DX** Auto Intelligent run of 8 sequencing steps, Fully Automatic Boric Acid Addition, Fully Automatic Dilution, Fully Automatic KMNO4 Addition for Available Nitrogen, Fully Automatic Alkali Addition, Fully Automatic Reaction Delay time, Fully Automatic Steam Processing, Fully Automatic Residue Delay time, Fully Automatic Residue Removal, Fully Automatic Water level Monitoring, 20 Predefinable user storage programmes with auto sequence, 24 keys, 32 characters, 2 line back-lit Alpha Numberic Display, 20 different users Programmable code on a single system, Distillation Capacity: 15-20 Samples/hr, Nitrogen Recovery > 99.5%, **Stainless steel non corrosive steam Generator, RS 232 interface for connectivity to Printer & PC, Software for documentation of results with builtin formulae for 9 parameters,** Builtin safety features like over temperature protection sensor, over pressure control valve, etc. Electrical Requirement – 220V/50Hz.

24.	Auto Analyser Distillation Unit	**KEL PLUS Automatic Microprocessor based Nitrogen Distillation System** **Alternative 1:** **Microprocessor based Automatic Distillation System MODEL DISTYL EM** Microprocessor based feather touch membrane switches, Programmable Automatic Alkali Addition - 5-35 ml, Manual Alkali Addition – Continuous, **Perilstatic pump with Spring loaded rotor and anticorrosive pump head** for Alkali addition, Automatic Steam Generation, Distillation time: - Programmable - (3-21 minutes), Distillation Capacity: 12-20 samples per hour, Nitrogen Recovery : 99.5 to 100%, **Stainless Steel Steam Generator with water level view window,** Heater Power : 1500 W, Automatic low water level Acoustic Alarm & Auto water refilling indication, Non corrosive Nylocast Tube Rest, Electrical requirement - 220 V/50 Hz. Built in safety features. **Alternative 2:** **Superior Automatic Microprocessor based Distillation System Model ELITE EX** Distillation Capacity: 15 - 20 Samples/hr, Nitrogen Recovery > 99.5 %, Bright Digital real time count down, Programmable Automatic and Manual Alkali Addition, Programmable Automatic & Manual Steam Distillation, Automatic Sample Dilution, **Automatic Kmno4 Addition For Available Nitrogen,** Automatic Water Level Monitoring, **Stainless steel non corrosive steam Generator,** Builtin safety features like over temperature protection sensor, over pressure control valve, etc. **Alternative 3:** **Auto Sequencing Fully Automatic PC Compatible Distillation System Model CLASSIC DX** Auto Intelligent run of 8 sequencing steps, Fully Automatic Boric Acid Addition, Fully Automatic Dilution, Fully Automatic KMNO4 Addition for Available Nitrogen, Fully Automatic Alkali Addition, Fully Automatic Reaction Delay time, Fully Automatic Steam Processing, Fully Automatic Residue Delay time, Fully Automatic Residue Removal, Fully Automatic Water level Monitoring, 20 Predefinable user storage programmes with auto sequence, 24 keys, 32 characters, 2 line back-lit Alpha Numberic Display, 20 different users Programmable code on a single system, Distillation Capacity: 15-20 Samples/hr, Nitrogen Recovery > 99.5%, **Stainless steel non corrosive steam Generator, RS 232 interface for connectivity to Printer & PC, Software for documentation of results with builtin formulae for 9 parameters,** Builtin safety features like over temperature protection sensor, over pressure control valve, etc. Electrical Requirement – 220V/50Hz.

25.	Automatic Digestion and Distillation Unit	**KEL PLUS Automatic Microprocessor based Nitrogen Estimation System** **I. KEL PLUS AUTOMATIC MACRO BLOCK DIGESTION SYSTEM** (Suitable for Plants, Soils, water, food and feed, fertilizer and pesticide samples) **Model KES 06L / KES 12L / KES 20L** Six Place / Twelve Place / Twenty Place with Aluminium Macro Block Digestion System of 250 ml. capacity, **Fuzzy logic Microprocessor based digital temperature controller, 50-450°C, Feather touch membrane keys,** Casted aluminium alloy heaters**,** Easy auto fix spring clamps to hold manifold **with all essential accessories like SS Rack, Exhaust Manifold System, Kel Flow suction Filter pump, etc. Electrical Requirement: 230V/50Hz Accessories: Quote for Additional one set tubes, Racks and 3 Mtrs Viton Tube for Diacid and Triacid Digestion.** **II. Two Stage Acid Neutralizer Scrubber** with Self priming water recirculation pump inbuilt in 15 Litre FRP tank with essential accessories like alkali container, water container, etc. **Model KEL VAC** **III. KEL PLUS AUTOMATIC DISTILLATION SYSTEM** **Alternative 1:** **Microprocessor based Automatic Distillation System MODEL DISTYL EM** Microprocessor based feather touch membrane switches, Programmable Automatic Alkali Addition - 5-35 ml, Manual Alkali Addition – Continuous, **Perilstatic pump with Spring loaded rotor and anticorrosive pump head** for Alkali addition, Automatic Steam Generation, Distillation time: - Programmable - (3-21 minutes), Distillation Capacity: 12-20 samples per hour, Nitrogen Recovery : 99.5 to 100%, **Stainless Steel Steam Generator with water level view window,** Heater Power : 1500 W, Automatic low water level Acoustic Alarm & Auto water refilling indication, Non corrosive Nylocast Tube Rest, Electrical requirement - 220 V/50 Hz. Built in safety features. **Alternative 2:** **Superior Automatic Microprocessor based Distillation System Model ELITE EX** Distillation Capacity: 15 - 20 Samples/hr, Nitrogen Recovery > 99.5 %, Bright Digital real time count down, Programmable Automatic and Manual Alkali Addition, Programmable Automatic & Manual Steam Distillation, Automatic Sample Dilution, **Automatic Kmno4 Addition For Available Nitrogen,** Automatic Water Level Monitoring, **Stainless steel non corrosive steam Generator,** Builtin safety features like over temperature protection sensor, over pressure control valve, etc. **Alternative 3:** **Auto Sequencing Fully Automatic PC Compatible Distillation System Model CLASSIC DX** Auto Intelligent run of 8 sequencing steps, Fully Automatic Boric Acid Addition, Fully Automatic Dilution, Fully Automatic KMNO4 Addition for Available Nitrogen, Fully Automatic Alkali Addition, Fully Automatic Reaction Delay time, Fully Automatic Steam Processing, Fully Automatic Residue Delay time, Fully Automatic Residue

		Removal, Fully Automatic Water level Monitoring, 20 Predefinable user storage programmes with auto sequence, 24 keys, 32 characters, 2 line back-lit Alpha Numberic Display, 20 different users Programmable code on a single system, Distillation Capacity: 15-20 Samples/hr, Nitrogen Recovery > 99.5%, **Stainless steel non corrosive steam Generator, RS 232 interface for connectivity to Printer & PC, Software for documentation of results with builtin formulae for 9 parameters,** Builtin safety features like over temperature protection sensor, over pressure control valve, etc. Electrical Requirement – 220V/50Hz. **IV. Automatic Digital Burette Titration System** Compact Titration System, End point of Titration controlled by 2 non slip hand wheels from continuous to dropping speed, Accurate 2nd decimal digital display at equivalence point, Volume ml - 50ml, subdivision ml - 0.01, Accuracy - ± 0.2 ml, Piston type with safety prime valve, telescoping filing tube, Conformity certified with electronic volume display, Battery pack for 60,000 titrations
26.	Automatic Nitrogen Analyser	Programmable Automatic Distillation Unit with built-in AOAC approved colorimetric Titration with built in program for 30 Pre-defined official methods & 10 customizable method, CE Certified from an ISO 9001 company based on KJELDAHL TECHNIQUE consist of : a) **Digestion Unit for 20 tubes**: Programmable Digestor System temperature control by microprocessor, LCD display, RS 232 connectivity. **b) Distillation Unit**: Programmable Automatic Distillation Unit with integrated Colorimetric Titration System (30 standard pre-defined programs & 10 customizable programs – all parameters concerning distillation & titration are programmable) having automatic alkali addition, automatic water dilution, automatic boric acid addition and automatic distillation residue removal, steam flow regulation 10 to 100%. RS-232 connectivity to a printer or PC for data storage and should have alkali resistant technopolymer splash head for longer life. Should have maintenance free steam generator with patented titanium condenser for efficient heat exchange. Should include safety features like safety door, tube in place safety and water saving system. The method adopted by the instrument should be in accordance with AOAC, EPA, DIN & ISO. Complete with 1 Digestion test tube 300 ml, 1 collecting flask 250 ml, 1 pincer for test tube, inlet tube, set of tubes & keyboard. Distillation Time : Starting from 4 minutes, Measuring Range : 0.1 to 200 mg Nitrogen Nitrogen Reproducibility : ≤ 1%, Recovery : ≥ 99.5% Alkali Addition : 0-100 ml, Dilute water addition : 0-200 ml Boric Acid addition : 0-100 ml, Storage Capacity : Upto 3500 values Maximum Burette Standard Value : 25 ml

27.	Automatic Protein Digestor cum Maldi Spotter	**Digilab Genomic Solutions** **The system should have the following features** **Reliability which e**nables a consistent Limit of detection down to 100fmoles of protein. **Environmental Control** including a completely enclosed sample processing environment with a built-in HEPA filtration The ability to store trypsin in an inactive form for extended periods and the to activate trypsin just prior to use **Peltier chilled reagent** storage blocks to prevent degradation of heat labile reagents. Full plate **vacuum flow-through design** for Zero carry-over from sample to sample. The system should have a facility to remove all waste liquids from all reaction blocks without the use of needles or tips resulting in no possibility that the gel plug sample will be lost to the wash station/waste container. **Reaction block design and temperature control for** preparation of 192 samples as simultaneous and/or separate incubation of each reaction block consisting of 96 samples. Ability to purge each reaction plate separately. Ability to simultaneously employ different chemistries for each reaction plate. Ability to simultaneously employ various digestion-type (in-gel and/or in-solution) methods for each reaction plate. Reaction Block Temperature Control Ambient to 70 deg C with +/- 1 deg C resolution (3deg C across plate) with ramping rate of 5deg/sec. **Ability to upgrade up to 8 reaction blocks** (each reaction block holds one 96-well reaction plate) **Liquid Handling system consisting of** five channel system with capacity of Channels 1-4, (5-500u l), Channel 5 (0.3-100u l) Pitch variablity from 9-18 mm. Needles should be open for used alone, with disposable tips or C18 Millipore Micro Zip Tips. Tip handling system should comprised of four needles and a tip ejector. Wash station for simultaneous internal/external needle wash with a speed of 15ml/min **MALDI Spotting** to accommodate spotting to MALDI targets from ALL major mass spec manufacturers. MALDI Spotting Accuracy of +/- 0.5 mm Should spot 192 samples in less then 2 hours. **Process Tracking should be done with** on-board SQL Server database stores calibration information, definitions of bed layout and protocols.

		Software Flexible and easy to use application software, which: **Should allow for splitting of samples into aliquots for analysis by MALDI as well as LC/MS/MS or other methods within the same sample plate.** **Should allow** for simultaneously employing different chemistries to separate reaction plates. **Should allow** for simultaneously employing different chemistries within same reaction plate. **Should allow** for simultaneously employing various digestion-type (in-gel and/or in-solution) methods to separate reaction plates. **Should allow** to use standard or easily customized methods. **Should i**nclude built-in relational database which:- Allows for process tracking. **Spot Handling Work Station consisting of** Pentium IV-512 MB RAM, 80GB Hard disk, 17" color TFT monitor, including CD ROM, colour printer and all the accessories including LAN and database management software**.** **Safe and** completely enclosed sample processing environment. **Support with** **On site trained** Application and Service support **More than one** successful installations in INDIA. Onsite training for atleast two scientists on the systems.
28.	Autoradio-Graphy Unit	• Multi-sized autoradiography cassettes suited for minigel; midigel; maxigel and manual sequencing gel. **(5 No. Minigel Size ; 5 No. Midigel Size; 2No. Maxigel Size; 1 Sequencing Gel Size)** • Made up of welded stainless steel frame, lead lined alumunium door and non-shedding oil free felt- lining. • Light tight Cassettes should ensure complete protection from leakage of any light signal. • Manufactured for maximum film contact edge to edge. • They should be adaptable to wide range of films/ screens
29.	Automatic Saccharimeter (Purity Analyser)	To record the quality parameters of sugarcane - Rudolf Research Analytical (USA) Accuracy : 0.01^0Z upto 5^0Z, Wavelength : 589 nm and 880 nm, std.

30.	Automatic Solvent Extraction System	**Velp Italy make L SER 148 3/ 6** Programmable Solvent Extraction System is used for rapid, safe & economic determination of soluble material in food, feed, soil, polymer, textiles and environmental samples. Manufactured by an ISO 9001 certified company based on technique Randall technique in accordance with AOAC, TAPPI, UNI, ASTM, APHA, AWWA, WEF, EPA etc. The extraction cycle's performance is further improved owing to uniquely designed thimble made of high quality cotton cellulose fiber and extremely thin (1 mm) due to extreme thinness, the solvents flow through the thimble's wall to be faster. The above mentioned thickness features and optimum pressing of the cellulose fibers makes the surface the new thimbles smooth and compact. RS-232 connectivity to printer or PC in order to print or store the data concerning the tests in progress. Number of program: 29 program Settable programs and values Working temperature : from 100 to 260^{0}C Immersion Time : from 0 to 999 times Washing Time : from 0 to 999 times Recovery Time : from 0 to 999 times Reproducibility : ± 1% Solvent recovery: from 50 to 75% Maximum sample volume/quantity : 150 ml (from 0.5 to 15 gm) Display : working temperature / settable parameters Safety Device : 2 different microprocessor controlled electronic circuits with Pt 100 probe, with an International Protector IP 55 Capacity per batch : 3 or 6 samples depending upon the model Extraction time : Less than 20% of Traditional Soxhlet time Supplied complete with Extraction cup (3 pcs), extraction Thimbles 25 pcs, extraction thimble holder, inlet tube, heat shield (3 place), Viton seal & butyl seal.

31.	Autoclavable Lab Fermenter	**Napro, India** **1. Autoclavable Lab Fermentor,** as per following specifications: • Total capacity 4 L, working capacity 2.8 L • without RPM display • Bottom driven seal-less & totally leak proof magnetic drive agitator with single impeller • Display & control panel box. • Cooling finger type cooling arrangement. • Sparger port with sparger dip tube • Vent port without reflex condenser • Inoculation cum sampling port with dip tube • Thermowell for temperature sensor insertion • Port for pH sensor fitting. **With** • Fermentor vessel body in stainless steel SS316 (instead of SS304) • Reflux condenser in SS304/SS316 • AC motor & veriable frequency (ACVF) drive with Digital RPM display (instead of universal motor & variac drive) • Temperature measurement, with RTD Pt-100 temperature sensor & digital temperature indicator • Automatic dual pH control, with autoclavable pH electrode & digital on/off type pH controller & 2 no. peristaltice pump for acid & alkali addition • Airflow loop components, including the following items : ❖ Capsule type autoclavable air filters (2 nos.) for air inlate & exhaust ❖ Airflow rotameter with needle valve for manual flow control ❖ Silicon tubing ❖ Diapharagm type oil- free mini air compressor • Thermal mass flow controller for automatic air flow control • DO measurement system, with autoclavable galvanic DO electrode & digital DO indicator • Foam control loop, with foam sensor, foam controller & fix speed peristaltic pump for antifoam dosing, & silicon tubing • Thermostat controlled water cooler with recirculation pump • Thermostat controlled water heater with recirculation pump **Autoclave Vertical**, Electrical, Double walled40 x 60 cm with foot lifting arrangement, Pressure 15lbs/ Sq Cm, SS 304, supplied with Pressure Gauge, Safety Valve/ Release Valve, Lid made up of SS thick plate / Basket

32.	Autometic verfical (Rotary) sticker labeling machine	Lable fit 8 to 90 mm Lable length 12 mm to unlimited Lable roll dia. 300 mm Core dia : 75/76 mm Electical : 220 VAC single Capacity 0.75 kg Speed upto > 20 lables / minute
33.	Automatic Weather Equipment – Envirostation	Data Logger & Accessories : Plug & Play Smart Logger. Standard 250 channels. Memory: 500,000; Date & Time Stamped, High Resolution (16 Bit) readings. Includes:LCD display, 6V/7 Ahr battery, 110/240V (12V, 2.5Amp DC output) power supply, RS232 cable, embedded software for operation with HyperTerminal & user manual. Databus Hub - Interface 14 channel, for use within LH3 Logger Housing ONLY Lockable Data Logger Housing (medium) , Sensor Shelter (to suit 3 sensors) , Upper Mast - 900mm length Lower Mast - 900mm length , Free Standing Base Assembly - to suit 2m mast , Cross Arm Assembly Solar Panel, 10 Watt 21 Volts , Solar Panel Mounting Kit for SX10M, (10 Watt solar panel) - suits 2m mast Sensors & Accessories : Wind Speed Sensor (Anemometer), 3 cup, Digital Range: 0.2-50 m/s, Accuracy: +/- 2% - 0.2m cable. Wind Direction Sensor, Digital Range: 0.01^{o} - 359.99^{o} Accuracy 0.5^{o} - 0.2m cable Air Temperature Sensor Range: $-20^{o}C$ to $60^{o}C$ Accuracy: $0.1^{o}C$ - 0.8m cable Global Solar Radiation Sensor with Sunshine hours function - 1m cable Barometric Pressure Sensor, Range: 800-1100 hPa Accuracy: 1 hPa 1m cable Relative Humidity Sensor Range: 0-100% Accuracy: +/- 2% - 0.8 m cable Automatic ET Calculation logged as a Virtual Sensor Automatic Dew Point Calculation logged as a Virtual Sensor Automatic Crop Water Stress Index calculation logged as a vertical sensor **Optional Accessories :** **GSM / CDMA** Data transfer facility

34.	Automatic Weather Station	**CAMPBELL SCIENTIFIC INC.,U.S.A.** Automatic Weather Station complete with Sensors, Mounting Kit, Support Software and Data Retrieval Options Consisting of: Analog Input: 8 differential or 16 single ended inputs, Channel Expansion provided by Multiplexer. **Range** **Resolution** ± 5000mV 1333 µ V ± 2500mV 067 µV ± 2.5mV 0.67 µV Accuracy : ± 0.06% + Offset -0° to 40°C Input Resistance: 20G ohms typical Processor : 16 Bit CPU with 32 Bit internal core Rechargeable battery with 10Watt Solar Panel for continuous use in the field. TRIPOD : 10 ft. foldable Tripod with Grounding Kit Datalogger Support Software Wind Speed & Wind Direction with 12ft. cable. VAISALA Air Temp. & RH Sensor with 10ft. cable and Radiation Shield Silicon Pyranometer • Electric Bucket Rain Gage Soil Temp., .Leaf Wetness Sensor **DATA RETRIEVAL** : Compact Flash Memory Module with 256MB and 1 GB Memory Card and Imagemate
35.	Auto weather station with disease forecasting software laptop printer spore traps	METOS C905C. Compact with solar Panel and charging module / ICT Australia make Software MD 506 P Solar Radiation (Pyranometer) sensor MD 511 C Wind Speed MD 512 C Wind Direction MD 523 C Tipping Bucket Rain Fall meteorological Stand for Mounting Metos compact locally fabricated Laptop
36.	A.V. Sterilizer	YORCO make sterilizer for sterilization of artificial vagina's, Cones and liners
37.	Autoclave vertical model	Nat steel make / Lab Hosp make Stainless steel jacketed, various capacity,

38.	Automatic Abbe Refractometers	Reichert Inc. USA make Reading Range : 1.3200 to 1.5200 Refractive Index 2) Precision : ± 0.0001 Refrac. Index, ± 0.1 Brix 3) Calibration : Upto 3 User Points 4) Temp. : 10 to 60^0C 5) Display : Graphic LCD Display
39.	Automatic Leaf Area Meter	Compact, Hand-held Instrument, advanced Laser Technology Measure and calculate AREA, LENGTH, WIDTH & PERIMETER, SHAPE FACTOR & ASPECT RATIO. High resolution of 0.1 mm^2 with Laser In-built data storage (64 KB memory). Capacity 15,000 measurements. RS232C port data transfer facility to computer. In-built rechargeable battery power. Measuring Width : 150 mm (15cm) maximum Sample Thickness : 25 mm (2.5 cm) maximum Accuracy : $\pm$ 1% for sample > 10 sq. cm. **Conveyer Attachment for measurement in detached leaves :** Measuring Width : 177 mm (17.7 cm) maximum Sample Thickness : 25 mm (2.5 cm) maximum Accuracy : $\pm$ 0.5% for samples > 10 sq. cm. Resolution : 0.01 sq. mm.
40.	Automatic Milk analyzer	LACTOSTAR /Nokia – To analyzer the parameter : FAT, SNF, TS, Degree, Added water, Freezing point and protein etc.
41.	Basket Press	Hand operator, 10 Ltr to 50 Ltrs, Make : Geeta Food Enginering , Mumbai

42.	Bench Top Centrifuge Machine	**Specifications:** **1) Code No.279,00V01 1 No.** **Refrigerated Microlitre Centrifuge** Hermle Labortechnic GmbH, Germany Z 323 K, 230V / 50-60 Hz Max. vol. : 4 x 100 ml Max speed : 17000 rpm Max RCF : 27.464 x g Dimn.(WxHxD) : 69/37/55 cm Weight :79 kgs **2) Code No.220.87.V03 1 No.** **Rotor** : Angle Rotor for 24 x 2 ml / 1.5 ml tubes Speed Max : 17,000 rpm RCF Value : 27464 x g Angle of Rotor : 45^0 Radius : 8.5 cm
43.	Bench Top Color Measuring System	(HUNTERLAB COLORFLEX Make) for the measurement of color of food & dairy products in various forms (solid, liquid, powders, paste, gel, whole fruit etc.) wit the following specifications: Measurement Principal : Dual beam spectrophotometer Measuring Geometry : 45/0 Wavelength Range : 400 – 700 nm Pitch : 10 nm Port diameter : 31.8 mm Wavelength Resolution : < 3 nm Photometric Range : 0 – 150 % Light Source : Pulsed Xenon Lamp Lamp Life : > 500,000 flashes Measurement Time : < 1 sec Standard accessories : Calibrated instrument Tiles, Certificate of traceability, Diagnostic tile, black glass Optional Accessories : Glass sample cup, Sample cup set, EasyMatch QC Software,

44.	Bench Top Shaking Incubator	**MRC Ltd. Hahistadrut 84, Holon 58393 Israel, Model-TU 400** System:Forced air circulation Shaking system: Orbital Temp. range: Room temp. : +5^{0}C to 70^{0}C Temp. constancy: ± 0.1^{0}C Temp. uniformity : ± 1^{0}C (at 37^{0}C) Temp. control : PID Rate of shaking : 20-250 rpm Shaking width : 25 mm Shaking plate size : W400XD300mm Max. load : 20 kg Inside dimensions : W450XD380XH260 mm Outside dimensions : W460XD490XH430 mm Accessories : Flask rack : 35 ml, 20 ml, 12 ml, 6 ml and 4 ml
45.	Bicycle Ergo Meter	For exercise, Stress testing, training, useful for calibration for human object, bicycle frame supported by wooden stand cast iron wheel 165 cm circumference weighing 22 log & Mounted on Ball bearing, Make- Labline Amrawati / Indus International
46.	Binocular Stereoscipic Micro Scope (with Digital Camera)	**Nikon make** Part Number MNA 41000: SMZ 800 Zooming body 1, MNB 42100: P-BT Binocular Eyepiece Tube 1, MMK 30300: C-W30x Eyepiece 30 x (F.N.7) 2, with Diopter Adjuster, Rubber Eye-Shields, Reticle Lead MNH 43100: P-PLAN IX (W.D. 78 mm) Diascopic Stand MMD 31100 : C-DS Diascopic Stand S with 1 reflecting mirror applied with transparent mirror supplied transparent stage glass, armrest, MME35201 : C-DSLS 6V20W Illuminator A with a 1 33 mm filter holder, MBF 12246: Transformer TN, A (220-240V) 1, MBF 11300: Power Cord BE 1, MXA 20533: Halogen Lamp6V20 W with reflector 1, MMXA 25005: C-DS 33 mm NCB11 Filter 6V 20W Episcopic Illuminator with Articulated Arm (220-240V) MME 35201: C-DSLS 6V20W Illuminator A with 1 A 33 mm filter holder, MXA 20533: Halogen Lamp 5V20W with Reflector 2, MNE 29900 : Articulated Arm 1, MBF 12246: Transformer TN A (220-240V) 1, MBF 11300: Power Cord BE 1 Accessories for Camera Attachment 5901: P-1BSS2 Beam Splitter S2 (Left/Right 1, Eye: Port 100/100:0 100/50:50), MBB63430: LV-TV Tube for T13, MQD 42000:C-Mount TV adapter A, Digital Camera Attachment and Intutive Software, Lumenera Infinity 1-1 Upgrade Kit w/Color Digital 1, Camera, for 1 PP, 1PE user Image Sensor: ½" CMOS format, color or monochrome, 6.5 mmx5.3 mm array, Effective Pixels : 1280x1024, 60 fps at 640 x 480 Digital Output: 8 and 10-bit uncompressed, Mass:300g, Interface Connector : USB 2.0 high-speed interface, Len Mount: C-Mount lens adapter with Imaging Software Q Capture Pro

47.	Bioanalyzer:	**Agilent Technology make** : **2100 Bioanalyzer** (CAT No. G 2940CAs) 2100 bioanalyzer desktop system – Includes 2100 bioanalyzer instrument, HP Compaq PC, 17" Monitor, HP DeskJet Colour Printer, 2100 expert software, vertex mixer with chip adapter, and chip priming station, without cartridge and license 2100 Bioanalyzer Electrophoresis Set (CAT No.G2947CA) Includes Electrode cartridge, License key for electrophoresis assays, test chip bundle and start-up service. **OR** **Make: Shimadzu Biotech,Japan, Model: MultiNA** Simultaneous up to 4 MicroChip loading for analysis with a cycle time of 75 sec & < 25 min analysis for 12 samples 1) Reusable Micro chips for more than 1500 analysis 2) Compatibility with wide range of sample tubes / plates for automated sample loading. 3) Capability to analyze very low sample volumes from 2 to 30 ul 4) Minimum of 100 analysis per analysis schedule 5) Minimum of 96 number of samples loading 6) Detection method: Fluorescence, filter spectroscopy (cut-on wavelength 525 nm) 7) Excitation light source: Blue LED (center wavelength 470 nm) 8) Detector: PMT (Photomultiplier tube) 9) Temperature during electrophoresis: 37°C 10) Electrophoresis power supply: Maximum rated voltage 1.5kV, maximum current 250 µA 11) Separation buffer filling: Offline pneumatic system (air cylinder) 12) Separation Kit for DNA/RNA analysis :- 500 to 2500 bp DNA analysis kit with sizing resolution of < 10% & sizing accuracy of < 15% & RNA kit for RNA analysis Software for one point instrument control , operation & data analysis a) Analysis:Analysis schedule creation, real time control, automated analysis preprocessing, automated analysis post-processing, automatic error processing b) Display monitor, log: Real time display, analysis log maintenance, usage log for consumable items and maintenance parts c) Maintenance service: Analysis performance check, checks following replacement of consumable parts d) Data formats: Proprietary data format, sample information import using CSV / EXCEL format e) Data analysis: Sizing, quantitation, manual editing and reanalysis of analysis results f) Data display: Gel image / electropherogram list viewing / detailed display, peak table / RNA report display Output: Analysis information, gel image, electropherogram, analysis results can be printed in various layouts or exported in CSV format Utilities: Data search, display of analysis performance check results

48.	Biosafety Cabinet	Fume Hood for Radiactivty Containment Thermo Forma USA. Towa Optics Pvt Ltd. **BIOSAFETY CABINET** • Biosafety Containment cabinet basically for minimized exposure to radioactivity. • The system should be suitable to be used for **minute** quantities of tracer amounts of radio-nucleotides and volatile toxic chemicals required as an adjunct to molecular studies • The supplied system should be complying with the highest quality and safety standards and should be fully-compliant with NSF/ANSI 49 of Class II Type B2 classification of Bio Safety Level, where there should be no recirculation inside the work chamber. • Contaminated air from the external environment should be drawn into the blower motor plenum and filtered into the working area. This air should be "totally exhausted", eliminating the risk of sample or user exposure to harmful chemicals. • The work surface should be minimum 4feet wide. • Sound Pressure Level should be less than 65 dB (A) • Supply/Exhaust Air Filter should have an efficiency of 99.99% @ .3 Microns or more. • System should be supplied with Prefilter installed on the top of the cabinet to filter out room contaminants thus helping to preserve life of the downflow HEPA or ULPA filters. • system should have 10° sloped window for ergonomic posture to reduce strain and fatigue associated with long working hours **OR** **FUME HOOD** • Fume Hood With High Thermal And Chemical Resistance Basically For Minimized Exposure To Radioactivity. The System Should Be Suitable To Be Used For **Minute** Quantities Of Tracer Amounts Of Radio-Nucleotides And Volatile Toxic Chemicals Required As An Adjunct To Molecular Studies • Powerful Fan Blower (0.25-0.5 Hp Motor) That Can Completely Exhaust Contaminated Air From The External Environment And Filtered Into The Working Area Thereby Eliminating The Risk Of User Exposure. • The Supplied System Should Be Complying With The Highest Quality And Safety Standards And There Should Be No Recirculation Inside The Work Chamber. • Slide type splash door with tempered safety glass. • Built in utility device with Stainless steel working structure and heavy duty ceramic working table

		Thermo Forma USA. / Towa Optics Pvt Ltd. / Exhaust (Class II, Type A2) Fully complies with NSF/ANSI 49 to ensure a safe operating environment for Class II, Type A2 conditions 30% & 70% Circulation Pressure Sensor Monitoring Patented monitoring system detects pressure changes inside the plenum to ensure safe airflow across the entire work surface Effective Cleaning To reduce risk of sample cross-contamination, a patented window design easily lowers to thoroughly clean window sash interior. The optional UV light is programmable from 30 minutes to 24 hours in 30-minute increments, minimizing bulb replacement Ventilation System Exhaust/Inflow Air Volume CFM (m3/h)530. DC Moter. **OR** **BIOAIR make** Fully EN12469 certified by Tüv Hamburg (Class II Type A2; Class I pending) • State of the art microprocessor control system • Main switch w/removable key • Soft touch keyboard • Bar graph for exhaust and downflow airflow conditions permanent display (Class II) • Bar graph for exhaust air flow conditions permanent display (Class I) • Alarms for low air flow and wrong front window position • Sloped front and back wall for the most comfortable access • Front access for filter maintenance and service • C-shaped support stand for the easiest one man installation procedure • Easy retrofit option kits

49.	Binocular Stereoscopic Micro Scope with Digital camera	**Nikon make** MNA 41000: SMZ 800 Zooming body 1, MNB 42100: P-BT Binocular Eyepiece Tube 1, MMK 30300: C-W30x Eyepiece 30 x (F.N.7) 2, with Diopter Adjuster, Rubber Eye-Shields, Reticle Lead MNH 43100: P-PLAN IX (W.D. 78 mm) Diascopic Stand MMD 31100 : C-DS Diascopic Stand S with 1 reflecting mirror applied with transparent mirror supplied transparent stage glass, armrest, MME35201 : C-DSLS 6V20W Illuminator A with a 1 33 mm filter holder, MBF 12246: Transformer TN, A (220-240V) 1, MBF 11300: Power Cord BE 1, MXA 20533: Halogen Lamp6V20 W with reflector 1, MMXA 25005: C-DS 33 mm NCB11 Filter 6V 20W Episcopic Illuminator with Articulated Arm (220-240V) MME 35201: C-DSLS 6V20W Illuminator A with 1 A 33 mm filter holder, MXA 20533: Halogen Lamp 5V20W with Reflector 2, MNE 29900 : Articulated Arm 1, MBF 12246: Transformer TN A (220-240V) 1, MBF 11300: Power Cord BE 1 Accessories for Camera Attachment MNB 45901: P-1BSS2 Beam Splitter S2 (Left/Right 1, Eye: Port 100/100:0 100/50:50), MBB63430: LV-TV Tube for T13, MQD 42000:C-Mount TV adapter A, Digital Camera Attachment and Intutive Software, Lumenera Infinity 1-1 Upgrade Kit w/Color Digital 1, Camera, for 1 PP, 1PE user Image Sensor: ½" CMOS format, color or monochrome, 6.5 mmx5.3 mm array, Effective Pixels : 1280x1024, 60 fps at 640 x 480 Digital Output: 8 and 10-bit uncompressed, Mass:300g, Interface Connector : USB 2.0 high-speed interface, Len Mount: C-Mount lens adapter with Imaging Software Q Capture Pro **OR** **Model Code CXL-E-CAM** **OR** Make-Olympus; Japan Model SZ61 with 45 degree inclined Binocular microscope with 10Xeyepieces & the magnification of 0.67X to 4.5X & the Zoom ratio 6.7:1; LED reflected/transmitted light source
50.	Bio Chemical Analyser	Metrolab, USA
51.	Bio Diesel Plant	Capacity : 100 lit/batch 1) Decordicator : motorized version suitable for above capacity 2) Seed cracking unit : with motor of suitable capacity 3) Seed crusher : horizontal type with funnel connected with screw adjuster, steam inlet provision, temp. monitors, motor and other electrical accessories 4) Filter arrangement : single/double stage filter, 10 microns minimum with pump and motor 5) Transesterification unit : All stainless steel reactor with atomized heating systems, top agitator tank, water washing tank, visible acrylic glass fittings for level monitor, control valves, electric motor and pump with cooking jacket and variator for motor. **FOR Rahuri including all taxes with installation on site.**

52.	Biomass Briquette Machine	MNES/ MEDA/ MNRE approved any make, Screw pressed briquetting machine with a concentric hole, capacity 50 kg/hr, briquette size of 1.6 to 3.2cm in diameter and 5-6cm in length
53.	Biomass gasifier along with genset	URJA – 60, Rishipooja Energy & Engg. Co. make OR MNES/ MEDA/ MNRE approved any make, Rated gas flow 150 m^3 hr., Av. C.V.1000, rated biomass consumption 60 –70 kg, 5 to 20% moisture content with 70% conversion efficiency, along with suitable generator set
54.	Blood Analyser	**Model : MUIRA-200 Analyzer** 1. True Random Access, Batch, STAT discreed fully automated analyzer 2. Throughput 200 tests/hour (upto 360 tests/hour with ISE module on request) 3. Single arm for sample & reagents 4. More than 40 reagent, refrigerated position with Tri-reagent facility 5. More than 40 sample positions for different primary tubes, samples cups 6. Online 3-contols facility with 18 standards 7. Long life ceramic plunger 500 ul max volume 8. Reading cuvettes 80 re-washablem buibex cyvettes 9. Automated cuvettes washing station 10. Calibration curves linear regression, cubic spline, linear piece-wise, polynomial 11. Sample dilution automatically from 1:1 to 1:100 12. Photometric linearity 0-3.0 OD 13. Sample volume 2-300 ul (0.193ul/pulse) 14. Reagent volume –1-500 ul (0.193 ul/pulse) 15.Typical reading volume 200 ul 16. Water consumption 2.5 liters / hours 17. Wavelengths 9 on board from 340 nm to 700 nm ± 2 nm 18. Operation system Windows® XP Pro. With interface to LIC host Ethernet (other on On request) 19. Monitor external, color 15", 1024x768 resolution. Wireless keyboard & Mouse. 20. Printer external A4 ink-jet 21. Reaction temps +37^{o}C±0.1 ^{o}C 22. Bar code facility for positive identification for samples & reagents (optional) 23. Real time electronics modular 4 micro-controllers, SMD technology 24. Reagent cooler T= 8 ^{o}C to 15 ^{o}C 25. Environment Temps 18-35 ^{o}C 26. Environment RH 20-85 % 27. Table top model with dimension (WxDxH) 114x75x59 cm 28. Weight about 80 kg.

55.	BOD Incubator Automatic	Steelmet make: BOD Incubator Automatic Works Space: (Interior dimensions)- 18" (D)x24"(W)x36(H), Temp. Range: +5°Cto60°C (heating and colling both), Accuracy±0.5 °C, Temp. Controller: with PT-100 sensor with digital display Construction- Interior: 18 swg Stainless Steel 304 sheet Exterior: 18 swg CRCA(MS) sheet-powder coated Viewing toughened double glass window to avoid temperature losses. Temperature shoot ups warned through audio alarm buzzer. Chamber lights ON-on oerating the door Utilities: S.S. adjustable trays will be provided along with the incubator. Regrigeration system: 'Kirloskar' make hermatically scaled compressor, 'Danfoss' make solenoid valves, cooling coil pressure gauge etc. Time delay to safefuard compressor. **OR** OSWORLD ISO 9001 COMPANY MODEL-JIRC 10, METALAB / YORKO / Deep Instruments Electronically controlled double walled in construction exterior made of mild steel with powder coated finish, interio made of stainless, glass wool insulation with magnetic gasket and lock, consist digital controller with 0.1°C with sensory, provided with air circulation for temperature controller with chamber, **For GMP model/ Kumar make/ /steel met make** These Microprocessor controlled cooling incubators are designed especially for close control of incubation / storage temperatures. These chambers are with soft touch keyboard for fast and accurate setting of various parameters. Constructed of double walls, the exterior is made of sheet steel while the inner chamber is made of stainless steel. GMP model with inner chamber of SS 316 and outer body of SS 304 stainless stee. Salient Features : * User friendly Microprocessor Design / Operation with precise temperature control * Safety thermostat to prevent over heating. * Audio visual alarm warning of Temperature variation. * Censorings interface for keeping hard copy of Temp. Time and Date. * Non volatile memory for data storage upto 620 records. * Adjustable print interval. * High voltage safety cutoff for unit protection. * Flexi glass inner door to inspect specimenInterface for temperature control through personal computer and for multiple networking of chambers. Chamber illumination with fluorescent or ultra violet lights. Cyclic timer for regulating illumination conditions. 6 Cubic Ft. Temp. 5°c to 60°c inner chamber of S.S. with Centronic printer interface 10 Cubic Ft. Temp. 5°c to 60°c inner chamber of S.S. with Centronic printer interface 12 Cubic Ft. Temp. 5øc to 60øc inner chamber of S.S. with Centronic printer interface

		OR **Model-Acm-22061-I, Make –Acmas Technology** **Size –** Inner Chamber - 650 x 900 x 550mm – Capacity -12 Cu.ft., Volume -336 Ltrs **Temperature Control –** Temperature Sensitivity - ± °C 0.5 or better Spatial Deviation In Temperature - ± °C 0.5 or better Readability - °C 0.51 Temperature range - °C 5°C to 60°C (Standard) Temperature Sensor - PT-100 Temperature Controller - Solid State digitalcontroller/PID optional Display - LED/LCD Adjustable alarm limits - With PID controller only. **Safety thermostats -** Temperature variation Adjustments - 3 (With PID Controllers only) Temperature Sensors - PT-100 Automatic temperature setting – Yes (With PID Controllers only)
56.	BOD Sensors With BOD Incubators	**VELP Scientifica srl, Italy** **i) BOD Sensor Systems 6 comprise of** 1) 6 position stirring unit 2) BOD Sensors & Bottles (500 ml cap.) 3) 6 Alkaly holders 4) 6 Stirring bars 5) For measuring the BOD with 4 scales : 90, 250, 600,abd 9999 ppm 6) The BOD Sensor automatically stores 5 BOD Measurments At 24- Hour intervals 7) The direct reading of the BOD value on the display at any time, even after five days. Stirring product line
57.	Bomb Calorimeter	For Calorific value of solid and liquid fuels

58.	Bottle Filling Machine	MGI brand ith ½ HP I ph motor filling quantity adjustable from 30 ml.-100 ml and fill speed 56 fills/min.
59.	Bottle Washing Machine	2 brush type, Motor : ¼ HP . 3 PH , Make : MG Industries, Coimbture, / Geeta Food Enginering , Mumbai **OR** S.S. soaking tanks with 2 ss rinsors, 2ss brush holders, 3 plhase motor with SS guard, 2 head type.
60.	Boy's Gas Calorimeter	For Calorific value of gaseous fuel
61.	Bread slicer	High speed, tablel top slicer
62.	Biscuit cutting and filling machine	With four nozzles, dropper with cutting wire, with different shape dyes for biscuits, nankatai, 60 kg/hr.
63.	Bullock drawn loading car	CIAE, Bhopal make, Pull Capacity 300 to 5000 N, Speed Limit 1.8 to 5 Kmph, Wt.-500 Kg, Differential Speed Ratio 1:4:27, Driving Wheel to pump speed ratio 180:90
64.	Cake mixer	Planetary mixer for mixing cake, bread, biscuit
65.	Canopy Analyser / Imager	**CID USA MAKE : MODEL CI 110** The instrument should be suitable for non-destructive measurement of Leaf Area Index, PAR, Solar Beam transmission coefficients, diffused radiation transmission coefficients, mean foliage inclination angle, Plant Canopy extinction coefficient. Only single measurement below the canopy required. Instrument should have the feature like no reference reading is required before capturing canopy image and only one single measurement below the canopy should be sufficient. The instrument should be based on image capturing principle and should be supplied with Laptop computer to view the image in the field itself. Measuring time : 0.05 sec. Fish-eye lens angle : 150^{O} Image Resolution : 640 x 480 pixels The instrument should includes with built-in Digital Fish Eye Camera or imaging probe with auto leveler built in 24 PAR sensor, high energy rechargeable battery, battery charger operating manual, and carrying case etc.

66.	CAD Cell (20 user) / Hardware for Pro-E Software	1) Windows 2003 Server with 20 user license 2) HCL Server 3) Think clients 4) LCD monitors 17” 5) 24 port D Link switch 6) CAT 5 cable 7) 2 KVA online UPS
67.	Cathode Ray Oscilloscope	Scientific make, 20 MHz general purpose Oscilloscope 201, dual channel
68.	Cell Counter	**Specification:** **Model : Mindray (BC-2800)** 1. Reportable Parameters WBCs, RBCs, HGB, MCV, MCHC, PLT, MPV, PDW, PCT,. Additional parameters for Dog and Cat Lymph, Mids, Grans, Lmph % , Mid%, Grans%. Histogram for WBCs, RBCs & PLT 2. It works Impedance resistance for counting and SFT method for hemoglobin 3. Sample volume for whole blood mode is 13 ul and prediluted mode is 20 ul 4. Throughput 25 samples / hour 5. Color LCD display. Resolution 640x480 6. Menu: Count, Animal, Review, Quality control, Setup, Service, Calibration, Shutdown 7. Carryover WBCs, RBCs, HGB<0.5%, PLT<1% 8. Input/Output Rs. 232, Parallel printer (Optional), bar code scanner (Optional) keyboard interface 9. Thermal recorder, 50 mm width paper, various printout format, printer optional 10. Operating environment Temps- 15 ^{o}C to 30 ^{o}C and Humidity 30% to 80% 11. Power requirement V, 50/60 Hz 100-240 Vat, 50/60 Hz 12. Dimension 322 (W)x 437 (H)x 386 (D) 13. Weight 17 kg.

69.	Centrifuge Machine	**REMI make Microprocessor centrifuge Non Refrigerated Centrifuge** **Model PR 23** Max. speed : 7000 rpm Max. 7560g, Max. Tube size 250 ml Max. capacity 1200 ml. Connected load 8 KVA Supply 220-240 Volts 50 Hz Single phase **+ (Plus)** Angle Head Swing Out Head (with plastic tubes) **Model R-234** 4 x 250 ml. Rpm 5500, 5070 RCF (g) **OR** REM1 Model, R-8C BL: Revolutionary laboratory centrifuge with brushless motor speed regulator, digital speed meter, timer, brake, imbalance detector and load lock but without rotor heads and accessories / **Accessories required:** **R-81**: 16x15 ml swing out head with graduated glass tubes **R-82**: 6x50 ml swingout head with graduated glass tubes **OR** Bench top model with50 ml, 100 ml, 250 ml capacity centrifuge / Remi make microprocessor non refrigerated centrifuge Max.Speed 7000 rpm/ REM1 Model: C-24BL Max. speed 20,000 rpm, Max. Capacity 400 ml, Connected load, 1.6 KVA, Lowest temp.80 ^{0}C **OR** Kisan Dairy Equipment : 300 lit. capacity / hr. 25 ltr. Capacity supply tank ¼ HP motor insulated, mounted on the same platform **OR** Non Refrigerated Centrifuge - HERAEUS (Pico-21), Capacity – 24 x 1.5 / 2 ml, Speed – 14800 rpm, Rcf – 21100 x g
70.	Charcoal Kiln	MNES/MEDA/MNRE approved any make Cylindrical drum of GI of length 1100mm, dia. 800mm, Av. Loading capacity 200 kg/day of agri. Waste, Av. O/P of kiln 80 kg/day

71.	CHNS-O-CL	**ELEMENTAR CHNS VARIO EL CUBE** **Technical Specification** Fully Automated PC controlled Elemental Analyser for : • Solids • Gases • Liquid and liquid volatile samples Operating modes for measurement : CHNS, CHN, CNS, CN, N, S, Trace S (detection limit of 2ppm for sulphur with IR) , O, Cl as add on modules. **OR** **Equivalent**
72.	Cheese vat	SS304 100 LTRS. With agitator
73.	COD Analyzer	**KEL PLUS AUTOMATIC COD DIGESTION SYSTEM WITH AIR CONDENSOR** **Alternative : 1** **Model KES 06 CDAC: KEL PLUS Microprocessor based Six Place Micro COD Digestion System With Air Condensers** COD Digestor for potassium dichromate - Sulphuric acid digestion of water/waste water samples, Metallic Block: Solid Aluminium Block with 6 holes to take 6 reaction vessels, Reaction vessel: 6 Nos, Vessel Capacity: 100 ml, Temperature Controller: Fuzzy logic Microprocessor based temperature controller with sensor break protection & built in thermostat, Cooling tray: Cooling stand for 6 Nos. of Reaction vessel, Air Cooler Stand: Air cooler stand for 6 Nos. of Air coolers, Temperature Control Range: Upto 400°C, Temperature Accuracy : + 1° C, Timer : Builtin timer with signal and Auto cut for temperature fixation, Power Requirement : 230V ± 10 Volt, 50 Hz, AC, Corrosion Free: Anti corrosive powder coated finish, FRP Water tank with provision of tap water circulation of sufficient size to cool 6 Nos. of vessels at a time **Alternative : 2** **Model KES 12 CDAC: KEL PLUS Microprocessor based Twelve Place Micro COD Digestion System With Air Condensers** COD Digestor can be used for potassium dichromate - Sulphuric acid digestion of water/waste water samples, Metallic Block: Solid Aluminium Block with 12 holes to take 12 reaction vessels, Reaction vessel: 12 Nos, Vessel Capacity: 100 ml, Temperature Controller: Fuzzy logic Microprocessor based temperature controller with sensor break protection & built in thermostat, Cooling tray: Cooling stand for 12 Nos. of Reaction vessel, Air Cooler Stand: Air cooler stand for 12 Nos. of Air coolers, Temperature Control Range: Upto 400°C, Temperature Accuracy : + 1° C, Timer : Builtin timer with signal and Auto cut for temperature fixation, Power Requirement : 230 + 10 Volt, 50 Hz, AC, Corrosion Free: Anti corrosive powder coated finish, FRP Water tank with provision of tap water circulation of sufficient size to cool 12 Nos. of vessels at a time,

		KEL PLUS AUTOMATIC COD DIGESTION SYSTEM WITH WATER CONDENSOR **Alternative : 1** **KES 06WC: KEL PLUS Microprocessor based Six Place Macro COD Digestion System with water condenser.** **Capacity :** 6 Samples at a time, Block Housing made of MS with powder coated finish, Extruded Aluminium Block with cavities to place Sample Reaction Vessel, The Block is Insulated using high grade ceramic wool, COD Digestion Test Tubes are provided with joint which is compatible with condenser end, **CDT**-250ml COD digestion tubes 6 Nos, Water cooled reflux Condensors - 6 Nos, SS Insert Rack Stand for holding the 6 Nos. of COD Sample Tubes, Powder coated tube support rack to keep the SS Insert Rack stand, Stand for water condenser, **Heaters :** Casted Aluminium Heaters to heat the aluminium block, Timer-with digital display 1-99.99 minutes for digestion process, Fuzzy logic Microprocessor based temperature controller with sensor break protection, Temperature Control Range: 40-450°C, Temperature setting repeatability : 1° C, Temperature readout : Digital, Temperature Indication: LED, Auto Tuning facility of Temperature Controller, Automatic safety features like over temperature protection , Auto Error Indication and sensor Break Protection, Electrical Requirement:220V/50Hz Ac mains **OR** **Alternative : 2** **KES 12WC: KEL PLUS Microprocessor based Twelve Place Macro COD Digestion System with water condenser.** **Capacity :** 12 Samples at a time, Block Housing made of MS with powder coated finish, Extruded Aluminium Block with cavities to place Sample Reaction Vessel, The Block is Insulated using high grade ceramic wool, COD Digestion Test Tubes are provided with joint which is compatible with condenser end, **CDT**-250ml COD digestion tubes 12 Nos, Water cooled reflux Condensors - 12 Nos, SS Insert Rack Stand for holding the 12 Nos. of COD Sample Tubes, Powder coated tube support rack to keep the SS Insert Rack stand, Stand for water condenser, **Heaters :** Casted Aluminium Heaters to heat the aluminium block, Timer-with digital display 1-99.99 minutes for digestion process, Fuzzy logic Microprocessor based temperature controller with sensor break protection, Temperature Control Range: 40-450°C, Temperature setting repeatability : 1° C, Temperature readout : Digital, Temperature Indication: LED, Auto Tuning facility of Temperature Controller, Automatic safety features like over temperature protection , Auto Error Indication and sensor Break Protection, Electrical Requirement:220V/50Hz Ac mains
74.	Cheese Vat (Lab Model)	Capacity : 10 Ltr capacity jacketed rectangular Vat Can, Agitator paddle : stain less steel, Agitator drive motor : 50 W, 0-30 rpm, Perforated strainer : stainless steel, Hygienic : " Pinch" type With Digital control panel, Heating water circulator : 0.85 Kw analog dia. setting, Circulating Pump : max flow 10 Ltr./min., Range : Ambient to 80^{o}C, Chart recorder for pH : pH probe-food spear type 0-14, Thermo couple probe : Type K

75.	Circulating Thermostatic Water Bath	• Thermostatic circulatory water bath with temperature range 5-100 ˚C with resolution upto 0.1° C • Temperature Accuracy : +/- 0.02°C at 25°C • Heater of at least 2kW for quick heating • Over temperature protection • Pressure pump: more than 10 liters /minute • Display : LED Display • Power Requirement: 220-240 VAC, 50Hz
76.	College PCR Package	Eppendorf / Biotron - Quantabiotech • Mastercycler Personal • epTips • Research Pipette • Minispin Centrifuge • College PCR Teaching Kit • UV Transilluminator • Electrophoresis Kit
77.	Colony Counter	Colony Counter- Digital, Desk Model, Ss Gmp
78.	Colours Scanning Machine (Spectrophotometer) along with Laptop	Suitable for food products. Measurement mode : % RFL & % TRN, Measurement principle: Daul beam, Sphere dimension : 152 mm diameter, Light source : pulsed xenon, Wavelength range : 360 to 740 nm, Length interval: 10 nm, Photometric range : 0 % to 200 %, Wavelength accuracy : 0.1 nm (Avg), Measurement time : 2 sec, Large area view (LAV): 25.4 mm diameter, Medium area view (MAV): 5 mm x 10 mm, Small area view (SAV) : 12 mm diameter, Very small area view (VSAV) : 3 mm diameter, UV filter : In & Out, Visible cut off filter : 420 nm/465 nm/560 nm, Operating temp. : 15 – 32^{o}C, Relative humidity : < 90 % Non condensing, Electrical requirement : 230 – 240 Volts/ 50 - 60 Hz

79.	Cooled Gradient Palm Cycler (PCR)	**Corbet, Australia** Sample Capacity : 96 X 0.2 ml micro-tubes, Temp. Range : 4^0C to 99^0 C Temp. Gradient: 24^0C max., Temp. precision : ± 0.5^0C, Temp. Uniformity : ± 0.2^0C at 55^0C, ± 0.5^0C at 99^0C Heating/ cooling rate : 2.5^0C/second (maximum), Programme Memory : 128Mb Special functions : Long range , touch down, gradient function, logging function, adjustable ramping, on line help, oligo calculator, auto resume on power failure. Dimensions:320mm(W) X 300mm (D) X 160 mm (H), Power:220 Vac,50/60 Hz, with a Compaq IPAQ (color screen)
80.	Compact Photometer for DNA, RNA and Protein Estimation	**BioPhotometer Plus** • A compact analyzer for rapid and reliable analysis of ds/ssDNA, RNA, oligonucleotides, proteins and bacterial cell density/turbidity measurement • Analysis time approx 2 seconds • Methods -ssDNA,dsDNA,RNA,Oligo,Protein,OD 600 and Lowry, Bradford and BCA (also possible as micromethods) • Optional background correction at 320 nm for UV methods • Automatic calculation of sample dilution • Simple conversion using the "Conversion" key • Up to 10 standards for colorimetric processes • Xenon light source with extremely long service life (10 years) • Storage of the last 100 results and all corresponding data • Storage of all calibrations • Sample and calibration data can be called up after being stored • Calibration memory : For protein methods • Results memory : For 100 results; absorption and ratio values, sample number, dilution date and time • Interface: RS 232 C , serial for printer or PC **Special features** • Very compact and extremely fast analysis • Xenon lamp for better source durability • Can be used for mili liter and micro liter analysis • Adaptor for micro liter analysis – up to 0.7 micro liter

81.	Compact Plant Water Status Console	**MRC Israel Make** **Water Potential** in Plants Pressure Chamber for measuring Water Status of leaves and small twigs. Comprises of a Mobile Unit – Portable Dimension 57 x 46 x 22 cm; case with handle. **Includes :** • Pressure chamber • Digital Display indication • Flow regulator • 3 way valve for controlling, 3 position chamber, exhaust, off. • Power 9V Battery • Digital zero adjustment • Communication for Data logging • Safety valve for overpressure • Pressure regulator • Max. pressure : 35 bar ± 1% • Pressured empty tap. • Silicon gasket unit 2,3,4,6 mm and special support washers. • Data Logger to data storage and data transfer facility Unit complete with empty gas cylinder, sealing sleeve, washer & manual
82.	Compound Binocular Microscope	Make-Olympus Model CX31, **(UIS2**) system Binocular,W.F.eyepieces(F.N.20),Plan achromatic objectives: Plan achromat objective 4X/0.1, WD 18.5 ; Plan achromat objective 10X/0.25, WD 10.5 ; Plan achromat objective 40X/0.65, WD 0.6 (spring) ; Plan achromat objective 100X/1.25, WD 0.13 (spring, oil). Brightfield condenser, quadruple revoving nosepiece, 6V30W illumination.
83.	Compound Microscope	Model BX41, **(UIS2**) system Trinoular,W.F.eyepieces(F.N.22),Plan achromatic objectives: Plan achromat objective 4X/0.1, WD 18.5 ; Plan achromat objective 10X/0.25, WD 10.5 ; Plan achromat objective 40X/0.65, WD 0.6 (spring) ; Plan achromat objective 100X/1.25, WD 0.13 (spring, oil). Sextuple revolving nosepiece; Ceramic surface mechanical stage with right-hand low drive control (long type) , For Dual Slides; Achromat/Aplanat condenser N.A. 1.40 Digital SLR Camera Olympus E330 with lens for out door photography,7.5 Megapixel. **OR** Leica Make Model BME : Microscope stand : Main stand with built in illumination 35 watt. **OR**

	Contd….	**Compound Microscope with software facilities : Olympus make** Microscope (Tribocular with photoport) combined reflected florescence and transmitted light modes, phase constract attach/dark field equip and digital photomicrography system with Nikon camera, 100 x objective, Irish diaphram and substage condensor (N-A 1.33 for oil immersion). Video projection system with high resolution digital C-C-D camera adopter, power pack and 14" coloured monitor, filar micrometer for precision measure of particle size, measure eye piece 10 x WF eye piece with graticule glass cell, spare halogen bulk 6-20 watt or 12 V 20 W, fuse glow blow type and other accessories for phase contrast, huorescence dark field, light microscopy lense system, interchangeable and compatible.
84.	Compression Testing Mach ine With Computer Interface	**BROOKFIELD TEXTURE ANALYSER** **QTS OR CT3 5, 10, 25, 50 KG LOAD RANG** • LOAD RANGE : 0-5KG, 0-10 kg, 0-25 KG, 0-50KG. • LOAD RESOLUTION: 0-5KG, 0-10 kg, 0-25 KG, 0-50KG IN 1G INCREMENTS • LOAD ACCURACY: BETTER THEN 0.1% OF FULL SCALE +/- AT 50KG • LOAD REPEATABILITY: BETTER THEN 0.1% OF FULL SCALE • POSITION RANGE:100 MM-520MM • POSITION ACCURACY: 0.02MM +/-0.1% OF SET DISTANCE • POSITION SETTING RESOLUTION : 0.01MM • POSITION MEASURING RESOLUTION : 0.1MM • TEST SPEED RANGE: 10-1000 MM/MIN0.17-16.7 MM/S • TEST SPEED ACCURACY: BETTER THAN 0.1% OF FULL SCALE • SPEED ACCURACY: BETTER THAN 0.1% OF FULL SCALE • TEST MODES: SINGLE, HOLD,REPEAT/TPA,CYCLE • MAXIMUM NUMBER OF CYCLES: 255 • DATA OUTPUT OPTIONS: ANALOGUE CENTRONICS PRINTER RS232 SERIAL • DATA ACQUISTION: 26 DATA SETS PER SECOND • PROTECTION: LOAD CELL OVERLOAD PROTECED BY ELECTRONIC STOP IN BOTH DIRECTION AND BYMECHANIAL STOP IN COMPRESSION. • APPROVALS: CE MARKED. • SECURITY: SOFTWARE PASSWORD DIFFERENT LEVELS OF USER • ATMOSPHERE: NORMAL LABORATORY CONDITION.PROTECTION IS REQUIRED FOR EXCESSIVE DUST. • OPERATIONG TEMPERATURE:5^{O} C TO 35^{O}C • POWER SUPPLY: 85-264 V AC 50/60Hz • POWER CONSUMPTION: 150W IT IS SUPPLIEDWITH CONTROLLER KAYPAD, RS232 INTERFACE, PRINTER OUTPUT,POSITION CALIBRATION ROD, SET OF EXTENSION RODS, OPERATING MANUAL POWER CODE.

85.	Computer Assisted Semen Analyser	Expert Vision Lab. Pvt. Mumbai make Biovis make IP 2000 BIOVIS IP2000 Motility analyzer (Computer 1 set Assisted Semen Analyzer): Image Analysis System for motility studies consisting of 1.1 CCD Camera Color: High Resolution 1 - Pixel format 795(H)x596(V) - Resolution > 450 TV lines resolution - Electronic shuttering 1 1.2 Image capture Card/Frame grabber 1 Mutech MV-500(from Mutech U.S.A.) - high Accuracy PCI Video frame grabber - Colour/Monochrome, NTSC/PAL, S-Video and RS-170/CCIR inputs - 768x576 pixel resolution - Image sequence captures @ 25 frames/sec. 1.3 Software: 1 2.1 Sperm chamber 1 (10 micron depth with 0.1 mmx100 grids) 2.2 Heating stage ambient 50 ^{o}C 1 3.1 Computer: 1 - Intel Pentium dual core 1.6 GHz - 512 MB DDR 2 RAM - 80 GB SATA HDD, 7200 RPM - 15" TFT monitor - Keyboard, Mouse, CD/DVD combo Drive 3.2 Printer: Colour printer for photo realistic quality output 1 3.3 UPS: 1KVA with 20 min. battery back up 1 4.1 Microscope: Cart 1 Zeiss Axiostar Plus (Made in Germany) 5.1 Strobe lighting system 1 5.2 Spare sperm chamber (10 micron depth with 0, 1 mmx 100 grids 1 6.2 Digital 2 megapixel color USB camera 1 7.0 Software : Image analysis Biovis Image Plus 1 8.1 Software : Biovis FISH:FISH imaging software 1 (requires integrating or cooled CCD camera system) 8.2 Software (Biovis Chrom software for chromosome analysis and karotyig 1
86.	Compression Testing Machine	Capacity 50 kN; Micro processor based controller; Max. clearance between Plates 390 mm; Max. distance between side Plates 260 mm; plate size 140 mm^2; piston diameter 50 mm; piston stroke 50 mm; specimen size 50 mm and 70.6 mm Cube

87.	Computerised Seed Counter	**Computerised Seed Counter : Indosaw Make: Model 6709** * Micro Controller based. * 16x1 line alphanumeric LCD display. * Membrane Keyboard. * Easily detachable pan. * Electromagnetic Vibratory feeder * Counts seeds of sizes from 1 mm to 15 mm * Counts maximum upto 999999 seeds in a lot. * Counting speed can be regulated. * Lot size programming * Programmable batch, number of lots in a batch through membrane keypad. * Opto electronic sensor * RS 232 interface capabilities for attaching computer and printer. * Parallel port for parallel printer. * Power supply 220 V/50 Hz operated. * Programming soft start and stop
88.	Computerized Tread Mill	2.75 hp Electric motor. Belt size 18"*52", Speed range-0.8 to 16 Kmph, Power fold & unfold & power inclined 0 to 121% fully under programmable Large distance gradient, Speed, Time, colorie burn, Soft Panel Self Diagnostics Trouble Shooting Programme size 39'*78'*32',Power Required 220 to 230 V, AC Max.Operating Temp-45 C, Humidity 99% with DC-Interface, Voltage Stabilizer.
89.	Computerised Vegetable Seed Dryer (Dehumidifier Type)	**COMPUTERISED VEGETABLE SEED DRYER (DEHUMIDIFIER TYPE) : Indosaw make : Model 6841** **A Batch Type with Hot Air Circulation, with Digital Controlling Systems for temperature air flow & time.** **Built in microcontroller based display.** **Facility to data record and storage capacity upto 1000 readings** **Watchdog timer to check the programme at all the times, And make sure that the programme is working properly.** **Cooling provided for low temperature drying.** **Inside Chamber Size : 120x90x90cm (approx)** Electronics : PID Control, Microcontroller based Digital display of temperature **Display : 16x2 line alphanumeric LCD display of temperature** Computer Interface : RS 232 Serial Port provided. **Tray Size : 90x89x5cm deep** No. of Trays : Six Operating Voltage : 220V ± 10% AC, 50Hz

90.	Cone Penetrometer	**ICT Australia Make : Model CP40II** Cone Penetrometer Consists of : Data Logger: Memory Size : 2047 Insertions and GPS Data Recording LCD Display : 160 x 128 pixel contest and backlight controlled LCD Load Cell: Pressure measuring range: 5600 kPa facility to attach shaft with variety of insertion cones. Insertion Cones shaft and wear gauge/guide Insertion Cones: • Lage insertion Cones as AE 323 mm^2 size Small insertion cone as AE 130 mm^2 diameter Shaft: Shaft to use with cones and insertion up to 750 mm in the soil. Cone Wear Gauge / Guide This helps to know the excessive wear and tear of the cones to avoid incorrect readings of the soil density down the profile. Target Sleeve, Peilican Case, Manual and software. The Penetrometer can optionally be fitted with a GPS receiver to record position information with every insertion. GPS settings can be set on and off. If the setting is on, the logger locks the GPS information before allowing the insertion. **OR** Hydraulic Type with body consisting of bell housing, convering pipe, pr.gauge, two handle, long stem with 12.5 mm graduation, niddle set 0.25,0.5,1,1.5,2,3.5 & 6 cm^2 Make: Labline - Amrawati make

		OR **BROOKFIELD TEXTURE ANALYSER** **QTS OR CT3 5, 10, 25, 50 KG LOAD RANG** • LOAD RANGE : 0-5KG, 0-10 kg, 0-25 KG, 0-50KG. • LOAD RESOLUTION: 0-5KG, 0-10 kg, 0-25 KG, 0-50KG IN 1G INCREMENTS • LOAD ACCURACY: BETTER THEN 0.1% OF FULL SCALE +/- AT 50KG • LOAD REPEATABILITY: BETTER THEN 0.1% OF FULL SCALE • POSITION RANGE:100 MM-520MM • POSITION ACCURACY: 0.02MM +/-0.1% OF SET DISTANCE • POSITION SETTING RESOLUTION : 0.01MM • POSITION MEASURING RESOLUTION : 0.1MM • TEST SPEED RANGE: 10-1000 MM/MIN0.17-16.7 MM/S • TEST SPEED ACCURACY: BETTER THAN 0.1% OF FULL SCALE • SPEED ACCURACY: BETTER THAN 0.1% OF FULL SCALE • TEST MODES: SINGLE, HOLD,REPEAT/TPA,CYCLE • MAXIMUM NUMBER OF CYCLES: 255 • DATA OUTPUT OPTIONS: ANALOGUE CENTRONICS PRINTER RS232 SERIAL • DATA ACQUISTION: 26 DATA SETS PER SECOND • PROTECTION: LOAD CELL OVERLOAD PROTECED BY ELECTRONIC STOP IN BOTH DIRECTION AND BY MECHANIAL STOP IN COMPRESSION. • APPROVALS: CE MARKED. • SECURITY: SOFTWARE PASSWORD DIFFERENT LEVELS OF USER • ATMOSPHERE: NORMAL LABORATORY CONDITION. PROTECTION IS REQUIRED FOR EXCESSIVE DUST. • OPERATIONG TEMPERATURE:5^{O} C TO 35^{O}C • POWER SUPPLY: 85-264 V AC 50/60Hz • POWER CONSUMPTION: 150W IT IS SUPPLIEDWITH CONTROLLER KAYPAD, RS232 INTERFACE, PRINTER OUTPUT,POSITION CALIBRATION ROD, SET OF EXTENSION RODS, OPERATING MANUAL POWER CODE.

91.	Concentrator Plus	• Narrow 32 cm with saves valuable bench space • Chemical-esistant PTFE diaphragm pump • Chemical-resistant stainless steel chamber • Extremely quite oeration, even with pump turned on • Choice of three application modes (aqueous, alcohol or high vapour pressure • Choice of four heating levels (room temperature, 30^0C, 45^0C, 60^0C) • Centrifugation and Disiccator function • Rotors : 1) Swing-bucket rotor A-2-VC for use with MTPS, PCR Plates and upto: 2) Fixed angle rotor, 48 x 1.5/2,0 ml. (F-45-48-11) • Vacuum : 20 hpa (20 mbar) • Fixed rotation speed : 1400 rpm • Tube – Sizes : 0.2-25 ml • Capacity : Max. 144 tubes 2 Micro plates
92.	Conductivity Meter	**Elico make : Model No. CN-1**80, Microprocessor based / **Model CM – 183** Conductivity Meter µp based EC-TDS analyser with ATC probe and conductivity cell. **OR** **Toshniwal make** **Model No. TCM-15** Conductivity/ TDS Meter (Without Cells) Auto Ranging Digital Conductivity/ TDS Meter. Without ATC
93.	Conductivity Meters & Conductivity Probes	Thermo Electron Corporation (Orion) ,U.S.A 1)Range : 0 to 3000ms/cm 2)Resistivity : 0.0001 to 100 MΩ 3)Salinity : 0.01to80.0ppt NaCl 4)TDS : 0.0 to 19,999.0mg/L 5)Cell Constant : 0.001 to 199.9 6)200 point datalog 7)Storage up to 10 password protected methods

94.	Controlled Atmospheric Storage Facility	LABULTIMA The System comprises chamber with MOC : SS304 Capacity : 125/500/1000 Ltrs **Chamber Parameters** Temp : 0 to 10^0C Temp Accuracy : $\pm$ 1^0C RH : 65 to 90% RH Accuracy : $\pm$ 5% Humidifier : Suitably designed to increase RH when it is below set point. (Steam injection) Refrigeration System : Suitably designed to maintain 0 to 10^0C in chamber Construction : Non Flameproof **Gas Detection System** ❑ O_2 detection Range : 0 to 10% ❑ O_2 detection accuracy : $\pm$ 1 to $\pm$ 1.5% ❑ CO_2 detection Range : 0.5 to 3% ❑ CO_2 detection Accuracy : $\pm$ 3%
95.	CNC Trainer Lathe	**CL – 100** **MACHTOOL Automation Pvt. Ltd. Model - CL –100** **Specifications:** Linear Tooling Arrangement with BTP – 50 Tool Turret, X, Z Axes with Hardened, Ground Guide-ways and Turcite Coating Ball Screws of PMI make – C – 3 Class, A2 – 5 Spindle Spindle Speed upto 4000 rpm Continuously Variable , Fanus OiTB mate CNC System Control, Rapid Traverse Rate of 10 metre/minute, Hydraulic Chuck or Collet System, Standard Accessories, Auto Coolant System Gross Weight: 2000 kg (approx.) **OR** **CNC Trainer Lathe, ASKAR** - **ALB CNC -**Askar Mechatronics Systems(P) Ltd. Model-ALB-CNC **Specifications:** Admit between centre ABC 700mm, Bed width 320mm, Max. turning diameter 440mm X Y axis work feed 0-1000mm/min, Standard spindle drive with induction motor AC digital servo drive for both axis, Coolant system, Centralized and programmable lubrication system Quality electrical devices with air conditional panel, Control Temperature, Humidity and dust free electronics Standard accessories, Gross weight 2500kg (approx.)

96.	CO_2 Analyser	**QUIBIT SYSTEMS Canada Make : Model S157** **SPECIFICATIONS** Operating principle Non-dispersive infrared Gas sampling mode Flowing gas stream, sealed chamber Maximum gas flow rate 650 mL/min Measurement range (LCD display) 0 - 1999 ppm Analog output, low sensitivity 0 - 2000 ppm Accuracy (assumes accurate recent calibration) Better than ± 2% of full scale Repeatability (assumes stable atm press and temp) Better than ±1% of reading Response time (@ 250 mL/min; to 95% of final value) ca. 45 sec Warm up time (@ 22oC) ca. 5 min Output (linear) for Low Sensitivity setting 0 - 5 VDC for 0 - 2000 ppm Calibration adjustments Zero and Span Operating temperature range 0 to 50oC Humidity range 5 to 95% RH, non-condensing Power requirements 15 VDC via 120/220 VAC/50/60 Hz adapter or rechargeable internal battery Battery type Sealed lead-acid ,Battery voltage/rating 12 VDC @ 0.5 Ah Recharge time 6 - 8 hours ,Operating lifetime 500 recharges Dimensions (cm) (H x W x D: 12.7 x 27.0 x 25.7) Supplied with LoggerPro Data Logger and carrying case **OR** Portable Carbon Dioxide (CO2) analyser **Make/model: PAQ** CO2 Range 0-10000 ppm Temp range: 10 to 85 degree C Humidity range: 0-100% Including Battery Charger Gas sample pipe Carrying case Data logging S/W and cable
97.	CO_2 Incubator	**YORCO** YSI – 449, 470 (W) x 710 (H) x (455 mm (D) **/ R S Biotech** **Thermo make** (Heraeus) Heracell –150 **/** R S Biotech.

98.	CO_2 Incubator (Water Jacketed)	Thermo Forma USA. Towa Optics Pvt Ltd UNIVERSAL WATER JACKETED CO2/O2 INCUBATOR Inner volume 180- 190 liters Temperature range: +5°C below ambient to +55°C. Silicon removable autoclavable inner door gasket. 100% coved corners. Polished stainless steel interior. Thermal conductivity (T/C) sensor with 5 years warranty "CLASS 100 AIR'" should appear on the Electronic control panel. Alphanumeric message screen. Co2 / O2 sensor to display 1-20% Class 100 condition of air inside the chamber within one minutes. True Triple wall construction. Dual pane heated glass door to avoid condensation **Built in HEPA filter Air Flow System(100% HEPA filtered air within 1 minute)** Opening of inner door shuts of the CO2 supply Access code to lock the parameters "REPLACE HEPA" replacement message should be displayed on to the alphanumeric LCD screen . Gas guard system, Co2 & O2 Regulators with corresponding cylinders Optional .
99.	CO_2 Incubator (Direct Heat)	Thermo Forma USA. Towa Optics Pvt Ltd. Inner volume 180 to 190 liters. Temperature range: +5°C above ambient to +50°C. Silicon removable autoclavable inner door gasket. 100% coved corner. Class 100 condition 0f air inside the chamber within one minute after each door closing **Built in HEPA filter air flow system (100% HEPA filtered air within 1 minute)** Opening of inner door shuts of the CO2 supply TC sensor by five year warranty & IR Sensor Access code to lock the parameters "REPLACE HEPA" alarm in the message as well as alpha numeric display. Certified by ISO 9001, CE mark, UL listed ,CSA certified. Dual Pane Heated Inner Glass Door.
100.	Crown Corking Machine	Hand operated , Make : Geeta Food Enginering , Mumbai/ Ganesh Food Enginering , Kopargaon
101.	Dal Mill	Make Dr. Punjabrao Krishi Vidyapeeth, Akola Capacity-300 kg, 2 HP single phase

102.	Data Logging Moisture Meter	**Data Logging Moisture Meter (with Humidity) : Indosaw Make : Model 2025** * Commodity calibration Food Grains, Pulses, Oil seeds, & Vegetables seeds *** Range: 3.5 to 40%** *** Consistency: ± 0.2 %** *** Principle of measurement: Resistance** *** Humidity Indication with HIH 4000 series humidity sensor.** *** 2x16 character alphanumeric LCD display** * Weight: 9.5 Kg (Approx.) * Size (LxBxH in cm): 30x18x19 cm * Recorded data can be transferred to PC through RS 232 port. * Provision for recalibration * Membrane type keypad *** Data Logging: it has facility to record data upto 200 readings, which includes moisture percentage, temp., commodity code along with date & time.** *** Average, Last reading recall facility & Curve Programming** *** PT-100 Temperature Sensor for temperature compensation** * 9V DC adopter for AC main or 6 (R-20 Type) dry cells
103.	Data Recorder And Cataloguing System /Software	Transas make Data Recorder -VDR /S-VDR 3200, transas VDR with fully compliant with IMO and IEC requirements, Picture grabbing from two radars , 10 sources of audio signal recording , external USB HDD

104.	Decision Support System for Agrotechnology Transfer (DSSAT)	• Latest DSSAT Version 4 software that combines crop, soil and weather data bases into standard formats for access by crop models and application programs. [Developed by ICASA through International Benchmark Sites Network for Agrotechnology Transfer (IBSNAT) project] • A software package integrating the effects of soil, crop phenotype, weather and management options that allows users to ask "what if" questions and simulate results by conducting, in minutes on a desktop computer, experiments which would consume a significant part of an agronomist's career. • The DSSAT package incorporates models of 27 different crops with new tools that facilitate the creation and management of experimental, soil, and weather data files. The user can then simulate multi-year outcomes of crop management strategies for different crops at any location in the world. • DSSAT also provides for validation of crop model outputs; thus allowing users to compare simulated outcomes with observed results. Crop model validation is accomplished by inputting the user's minimum data, running the model, and comparing outputs. • By simulating probable outcomes of crop management strategies, DSSAT offers users information with which to rapidly appraise new crops, products, and practices for adoption. • DSSAT v4 includes improved application programs for seasonal and sequence analyses that assess the economic risks and environmental impacts associated with irrigation, fertilizer and nutrient management, climate change, soil carbon sequestration, climate variability and precision management. • Personal Computer running MS-Windows; Pentium4 with 512MB RAM; with CD-Rom Drive and Hard Disk Space requirement 300MB of free space. • Loaded with Land Module; Management Module; Soil module; Weather module; Soil-Plant-Atmosphere module ; CROPGRO plant growth module (Grain Legumes; Vegetables and Grasses); CERES Plant Growth Module (Grain Cereals) and SUBSTOR Plant Growth Module. • A suite of tools is supplied for data management and analysis. XBuild is used to create and modify experiment files (X-Files). The suite of tools includes (but is not limited to) ATCreate (observed data), Weatherman (Weather data), GBuild (Graphing of outputs), and SBuild (Soil database). • Additional accessory tools desired include ICSim, Stats and EZ Grapher to access the DSSAT data for applications designed by the developers.

105.	Deep Freeze (20°C to -40°C)	**<u>-20°C Deep Freezer</u>** **Vest Frost** • Type : Vertical with Temperature Range : -20°C to -40°C and • Capacity: 300- 600 liters; • High quality insulation. • Based on Non CFC refrigerants • 1 H.P. compressor with integrated safety devices. • Interior chamber made up of stainless or galvanized steel • Triple point silicon gasket • Built–in Automatic high and low voltage compensator. • Built in vacuum relief port for easy re-entry after door opening • Condenser hot indication on panel. • Battery back-up for monitoring system with low battery alarm for 72 Hrs. • Independent temperature controller and Monitor/ alarm system. Alarm : Visual and audible for low and high temperature, power failure, system failure, low battery and clogged filter ISO 9001 approved. **OR** **Thermo forma**. A: -20^0C The Deep Freezers are high-tech units incorporating revolutionary cascade cooling system giving advantage to the users of rapid pull down of Temperature upto - 20°C Constructed of double walls, the exterior is made of sheet steel and finished with acrylic enamel paint. The inner chamber is made of stainless steel. The unit is mounted on custor wheels for ease of mobility. Salient Features : *Temperature range (-20°c to –25°c) in AC room, *Stainless steel inner chamber. *Extremely efficient PUF insulation to minimise heat loss. *High-tech solid state digital indicator-cum controller *Counter balanced door. *Inside acrylic doors to avoid temperature loss. Technical Data : 185 Lit. capacity inner chamber of stainless steel, temperature upto –20°C with built in Digital temp. indicator cum controller having audio-visual alarm with suitable serv control voltage stabilizer. With five year AMS **OR** REVCO make ULT 2140-3v, Capacity – 573 Lit, Temp. –10^0 to –40^0C

		OR **POOJA LAB,** **Deep Freezer -40^0 C Vertical,** Model PLE 111 SLCV-01 Volume CU. Ft/Ltrs-03.22 / 092, Shelves - 1 , Inner Dime. WxDxH:- 45x45x45 **External Dime. WxDxH cms :- 65x70x110** **OR** **Deep Freezer**: Horizontal Type Tempt Range: Ambient To – 35 ^{0} C Tempt Control: Digital Inner & Outer: S.S. Insulation: Puf **Cpacity: 265 Ltr** **Deep Freezer -40^0 C Horizontal** Model PLE 111 SLCH-01 Volume CU. Ft/Ltrs-03.22 / 092 Inner Dime. WxDxH:- 45x45x45 **External Dime. WxDxH cms :- 101x66x80** **OR** **POOJA LAB** **OR** **B) Deep Freezer -40^0 C Vertical** Model PLE 111 SLCV-01 Volume CU. Ft/Ltrs-03.22 / 092 Shelves - 1 Inner Dime. WxDxH:- 45x45x45 **External Dime. WxDxH cms :- 65x70x110**

106.	Deep freezer (-80˚C ULTRA)	• Type : Vertical with Temperature Range : -60°C to -80°C and • Capacity: above 500 liters; • High quality insulation. • Based on Non CFC refrigerants • Compressor with integrated safety devices. • Interior chamber made up of stainless or galvanized steel • Triple point silicon gasket • Built–in Automatic high and low voltage compensator. • Built in vacuum relief port for easy re-entry after door opening • Condenser hot indication on panel. • Battery back-up for monitoring system with low battery alarm for 72 Hrs. • Independent temperature controller and Monitor/ alarm system. Alarm : Visual and audible for low and high temperature, power failure, system failure, low battery and clogged filter ISO 9001 approved. **OR** HERAEUS make (HFU 486 Basic) Capacity – 486 Lit. Temp. -50^0 to -86^0C Insulation thickness wall/Door – 150 mm **OR** **Heraeus make**-HFU586 Basic (-86^0C) **A: -80^0C The Deep Freezers are high-tech units incorporating revolutionary cascade cooling system giving advantage to the users of rapid pull down of Temperature upto - 80°C Constructed of double walls, the exterior is made of sheet steel and finished with acrylic enamel paint. The inner chamber is made of stainless steel. The unit is mounted on custor wheels for ease of mobility.** Salient Features : *Temperature range (-40°c to –80°c) in AC room *Stainless steel inner chamber. *Extremely efficient PUF insulation to minimise heat loss. *High-tech solid state digital indicator-cum controller. *Counter balanced door. *Inside acrylic doors to avoid temperature loss. Technical Data : **185 Lit. capacity inner chamber of stainless steel, temperature upto –80°C with built in Digital temp. indicator cum**

107.	Dehumidifier	**DEHUMIDIFIER (DHF) 150CFM : Indosaw make : Model 6502** Dehumidifier should use the desiccant which is of indigenous make and easily available. These dehumidifier should of cyclic type and involve less moving parts thus making the system maintenance free. Two beds of desiccant should be used cyclically one at a time for dehumidification & other for regeneration of Silica gel. **FEATURES:** ➢ Heavy duty Construction. ➢ All components accessible without removing ducts. ➢ Air filters are standard equipments. ➢ Heavy duty construction. ➢ **Stationary desiccant beds made of perforated steel. No fly screen, no sagging flat beside. No moving parts in bed thereby making it more reliab**le. ➢ Permanent desiccant lasts for a long time, non-toxic non corrosive. ➢ Electrically controlled. ➢ **ADSORPTION AIR FLOW OF 150 CFM.** ➢ **Single phase 230Volts 50Hz or Three phase 440V** ➢ **Dimensions: 49''x32''x34''(approx).** **Accessories: Humidistat for automatic switching ON/OFF dehumidifier.**
108.	Delta T SunScan Meter	• Instrument both SunScan probe and SunShine Sensor to capture both direct & diffused light beam with 64 diode readings per SunScan reading. Capable of measuring Leaf Area Index by detaching the sensor • Connecting cable in between SunScan probe and SunShine Sensor; of varying length (10; 25 & 50m). • Datalogger cable SunScan probe • SunData Software for WINDOWS Mobile version 5 or 6 loaded in ruggedized PDA (Personal Digitalized Analyzer) for estimating SunScan reading with its averages • Holster belt and carry case for both Personal Digitalized Analyzer and SunScan system. • Telescopic tripod stand for SunShine sensor. • Radio- transmitter for sunshine sensor; links (434 Hz) to SunScan probe.
109.	Diesel oven	Baby diesel fire oven

110.	Digestion and Distillation Unit	**KEL PLUS Automatic Microprocessor based Nitrogen Estimation System** **I. KEL PLUS AUTOMATIC MACRO BLOCK DIGESTION SYSTEM** (Suitable for Plants, Soils, water, food and feed, fertilizer and pesticide samples) **Model KES 06L / KES 12L / KES 20L** Six Place / Twelve Place / Twenty Place with Aluminium Macro Block Digestion System of 250 ml. capacity, **Fuzzy logic Microprocessor based digital temperature controller, 50-450°C, Feather touch membrane keys,** Casted aluminium alloy heaters**,** Easy auto fix spring clamps to hold manifold **with all essential accessories like SS Rack, Exhaust Manifold System, Kel Flow suction Filter pump, etc. Electrical Requirement: 230V/50Hz Accessories: Quote for Additional one set tubes, Racks and 3 Mtrs Viton Tube for Diacid and Triacid Digestion.** **II. Two Stage Acid Neutralizer Scrubber** with Self priming water recirculation pump inbuilt in 15 Litre FRP tank with essential accessories like alkali container, water container, etc. **Model KEL VAC** **III. KEL PLUS AUTOMATIC DISTILLATION SYSTEM** **Alternative 1:** **Microprocessor based Automatic Distillation System MODEL DISTYL EM** Microprocessor based feather touch membrane switches, Programmable Automatic Alkali Addition - 5-35 ml, Manual Alkali Addition – Continuous, **Perilstatic pump with Spring loaded rotor and anticorrosive pump head** for Alkali addition, Automatic Steam Generation, Distillation time: - Programmable - (3-21 minutes), Distillation Capacity: 12-20 samples per hour, Nitrogen Recovery : 99.5 to 100%, **Stainless Steel Steam Generator with water level view window,** Heater Power : 1500 W, Automatic low water level Acoustic Alarm & Auto water refilling indication, Non corrosive Nylocast Tube Rest, Electrical requirement - 220 V/50 Hz. Built in safety features. **Alternative 2:** **Superior Automatic Microprocessor based Distillation System Model ELITE EX** Distillation Capacity: 15 - 20 Samples/hr, Nitrogen Recovery > 99.5 %, Bright Digital real time count down, Programmable Automatic and Manual Alkali Addition, Programmable Automatic & Manual Steam Distillation, Automatic Sample Dilution, **Automatic Kmno4 Addition For Available Nitrogen,** Automatic Water Level Monitoring, **Stainless steel non corrosive steam Generator,** Builtin safety features like over temperature protection sensor, over pressure control valve, etc. **OR** Combined digestion and distillation unit working on 220/230 volts AC Model KDTDG-6S and KDTDG-6I, capacity six flasks.

		<u>Alternative 3:</u> **<u>Auto Sequencing Fully Automatic PC Compatible Distillation System Model CLASSIC DX</u>** Auto Intelligent run of 8 sequencing steps, Fully Automatic Boric Acid Addition, Fully Automatic Dilution, Fully Automatic KMNO4 Addition for Available Nitrogen, Fully Automatic Alkali Addition, Fully Automatic Reaction Delay time, Fully Automatic Steam Processing, Fully Automatic Residue Delay time, Fully Automatic Residue Removal, Fully Automatic Water level Monitoring, 20 Predefinable user storage programmes with auto sequence, 24 keys, 32 characters, 2 line back-lit Alpha Numberic Display, 20 different users Programmable code on a single system, Distillation Capacity: 15-20 Samples/hr, Nitrogen Recovery > 99.5%, **Stainless steel non corrosive steam Generator, RS 232 interface for connectivity to Printer & PC, Software for documentation of results with builtin formulae for 9 parameters,** Builtin safety features like over temperature protection sensor, over pressure control valve, etc. Electrical Requirement – 220V/50Hz. **<u>IV. Automatic Digital Burette Titration System</u>** Compact Titration System, End point of Titration controlled by 2 non slip hand wheels from continuous to dropping speed, Accurate 2nd decimal digital display at equivalence point, Volume ml - 50ml, subdivision ml - 0.01, Accuracy - <u>+</u> 0.2 ml, Piston type with safety prime valve, telescoping filing tube, Conformity certified with electronic volume display, Battery pack for 60,000 titrations
111.	Digital Camera	**Specifications:** **SONY make Cybershot ,** Model : DSC W80 DSC W90 DSC W200 DSC T 70 DSC T 200 DSC H 7 DSC H 9 **Sony make Handycam** Model: DCR – DVD 708/E DCR – DVD 709/E
112.	Digital Camera, Video Camera with Microprocessor and Documentation System	Nikon digital camera D40x, Lence 18-135, 10.2 mega pixel, screen guard, USBE code 2 GB ,memory card, UV filter, flash Nikon SB-400 Video camera-Canon XH-A1 or Panasonic AG- HVX200 DV

113.	Digital Handheld Refractometers	Reichert Inc. USA Reading Range : 1.3300 to 1.5600 Refractive Ubdex 2) Scals : Refractive Index, Brix, Brix, Up to User Definable 3) Precision : ± 0.0001 Refrac. Index, ± 0.1 Brix 4) Calibration : Upto 5 User Points 5) Power : 4 – AAA Alkaline Batteries
114.	Digital Laboratory Refractometer with Laptop	Abbe make, Display type : Touch sensitive LCD with backlight, Display size: 8.9 cm, Resolution : 320 x 240 pixels, Well & Sample area : stainless steel, Prism : Sapphire, Light source : Long life LED @ 589.3 nm, Temp. control : solid state, Thermoelectric peltier device, Temp. control range : 10 - 50^{o}C, Temp. control accuracy : ± 0.2^{o}C, Retractive Index (nD) : Range : 1.333 to 1.58 nD, Resolution : 0.00001 nD, Precision : ± 0.00005 nD, Brix : Range : 0 to 100 brix, Resolution : 0.01 brix, Precision : ± 0.02 brix
115.	Digital Moisture Testing Machine	Suitable for food grain, pulse, oilseed, vegetable, etc. Range : 3.5 to 40%, Consistancy ± 0.2%, Transducer: Compression unit to annul the porosity effect, Principle of measurement : Resistance, Display : Digital, 3 digit LED, Calibration : Automatic, Range selection : Automatic, Low battery indication : LED indicator, Other feature : Provision for temperature display, Attachment : 32 port provided for printer / Computer
116.	Digital IC trainer	AGRONIC-DIC1, Digital logic lab/trainer for basic and advance digital electronics
117.	Digital Photography Camera	D-4 x Digital camera with 18.135 Lens, USB & AV card, 2 GB Memory card, Screen Guard US 58 mm, Nikon 400 Flash
118.	Digital Portable Kit	For analysis of pH and EC of Soil and water

119.	Digital Sap Flow System	It should be suitable to monitor continuous Sap Flow in woody plant and Trees with a provision for measuring Sap Flow in Wheat , maize , rice and other monocotyledon plants also. The system should be able to monitor continuous up wards and reverse / down wards Sap Flow in woody plants and trees. The Digital Sap Flow System should be comprise of 12 Nos. Heat Ratio Method (HRM) Sensors and Field Station with Data Logging Instruments with all accessories including Sensors Installation Kit and Replacement Parts and Extra cables. **Specification of HRM Sensors :** Heat Ratio Method Sapflow Sensor - Consists of three probes 30mm long integrated micro-processor smart interface with 5m cable length and HRM Sensor should have following Specifications : **Sensor Output** Smart Output : Serial Data Heat Pulse Velocity : Cm/hr Sap Velocity : Cm/hr Sap Flow : Ltr/hr **Heat Pulse** User Adjustable Heat Pulse : 25 joules approx Minimum Interval : 10 min **Sensor Design** Probe Diameter : 1.3 mm Probe Length : 30 mm Thermocouple : 2 per probe **Field Station with Datalogging Instruments :** Plug & Play Smart Logger. Standard 200 channels. Memory: 500,000 (4MB); Date & Time Stamped, High Resolution (16 Bit) readings. Includes :LCD display, 6V/7 Ahr battery, 110/240V (12V, 2.5Amp DC output) power supply, RS232 cable, embedded software for operation with HyperTerminal & user manual. Field Station should be supplied complete with enclosure , Mast and other accessories with Solar Panel. Data communication with GSM Telemetry and optional hard wired through RS232C Cable to Lap Top PC or Desk Top PC from Logger.

120.	Digital Temperature & Humidity Indicator	**DIGITAL TEMPERATURE & HUMIDITY INDICATOR : Indosaw Make : Model 6816** **Interchangeable Probes** **Output for both temperature and humidity** **Big LED display 14mm.** **Temperature Sensor PT-100** **HUMIDITY** **Range : 5 to 95% RH** Resolution : 0.1% RH Accuracy : ±2% RH at 25 ^{0} C **TEMPERATURE** **Range : -40 to +60 ^{0} C** Resolution : 0.1 ^{0} C Accuracy : ±0.5 ^{0} C at 25 ^{0} C Display : 3½ Digit LED, Digit height 14 mm. Power : 230V ±10%, 50 Hz AC.
121.	Digital Thermo hydrometer	* Diplay termperature, humidily and time simultaneously Memory of maximum and minimum measuring value. * 24 hrs Displaying system * Display Resolution : 196 0.1 degree one minute * Display accuracy : +/396, + / -1^{0}C + /-2 ^{0} F/ 3 seconds perday • Integral hour function • Desktop placing or Wall Hanging- Alaram function, Clock calender function * Dimensions : 98 (W) X 110 (h) X 21 (d) mm, Power : 1 X AAA battesy supplied
122.	Digital Video-shooting Camera	Memory of maximum and minimum measuring value.
123.	Digital Water activity meter	Saksham Enterprise Specification: - Integrated Aw Quick mode with quick analysis software - Single or multiple point digital calibration directly by key pad with P.C. - Single or multiple point digital calibration directly with keypad - Aw display units Aw range 1.00-0.95

124.	Direct Shear Apparatus	Motorized operations for direct shear measurement. Specimen size 60x60x25 mm. Rate of strain 0.0002 – 1.25 mm/ min. with complete accessories comprising of weights, shear box assembly proving ring type . Testing as per IS 11229 and 2720 part 13.
125.	Direct Shear Outfit, with Microprocessor Loading Unit Electronic	Integrated measurement electronics display 3 ½ digit DPM, selectable switch to read and load. Transducers for horizontal and vertical displacement. Universal type load cell. 2 kN capacity. Displacement LVDT with measurement range +/- 20 mm travel. 2 Nos. speed range. Standard speed : 0.00001 to 9.9999 mm / min. Fast forward/ reverse: 10 mm /min. l Power Requirement : 230 V 50 Hz single phase.
126.	Distillation Assembly	**KEL PLUS Automatic Microprocessor based Nitrogen Distillation System** **Alternative 1:** **Microprocessor based Automatic Distillation System MODEL DISTYL EM** Microprocessor based feather touch membrane switches, Programmable Automatic Alkali Addition - 5-35 ml, Manual Alkali Addition – Continuous, **Perilstatic pump with Spring loaded rotor and anticorrosive pump head** for Alkali addition, Automatic Steam Generation, Distillation time: - Programmable - (3-21 minutes), Distillation Capacity: 12-20 samples per hour, Nitrogen Recovery : 99.5 to 100%, **Stainless Steel Steam Generator with water level view window,** Heater Power : 1500 W, Automatic low water level Acoustic Alarm & Auto water refilling indication, Non corrosive Nylocast Tube Rest, Electrical requirement - 220 V/50 Hz. Built in safety features. **Alternative 2:** **Superior Automatic Microprocessor based Distillation System Model ELITE EX** Distillation Capacity: 15 - 20 Samples/hr, Nitrogen Recovery > 99.5 %, Bright Digital real time count down, Programmable Automatic and Manual Alkali Addition, Programmable Automatic & Manual Steam Distillation, Automatic Sample Dilution, **Automatic Kmno4 Addition For Available Nitrogen,** Automatic Water Level Monitoring, **Stainless steel non corrosive steam Generator,** Builtin safety features like over temperature protection sensor, over pressure control valve, etc. **Alternative 3:** **Auto Sequencing Fully Automatic PC Compatible Distillation System Model CLASSIC DX** Auto Intelligent run of 8 sequencing steps, Fully Automatic Boric Acid Addition, Fully Automatic Dilution, Fully Automatic KMNO4 Addition for Available Nitrogen, Fully Automatic Alkali Addition, Fully Automatic Reaction Delay time, Fully Automatic Steam Processing, Fully Automatic Residue Delay time, Fully Automatic Residue Removal, Fully Automatic Water level Monitoring, 20 Predefinable user storage programmes with auto sequence, 24 keys, 32 characters, 2 line back-lit Alpha Numberic Display, 20 different users Programmable code on a single system, Distillation Capacity: 15-20 Samples/hr, Nitrogen Recovery > 99.5%, **Stainless steel non corrosive steam Generator, RS 232 interface for connectivity to Printer & PC, Software for documentation of results with builtin formulae for 9 parameters,** Builtin safety features like over temperature protection sensor, over pressure control valve, etc. Electrical Requirement – 220V/50Hz.

127.	Distillation Unit For Oil Extraction	**SOCS PLUS AUTOMATIC SOLVENT EXTRACTION SYSTEM FOR OIL EXTRACTION** **Alternative 1:** **TWO PLACE AUTOMATIC SOLVENT EXTRACTION SYSTEM. MODEL SCS 2** Samples – Two, Heater source – **Casted Aluminium Alloy heaters**, Heater power – 1000 W, Temperature Range – 35ºC to 200ºC, Temperature Accuracy - +/- 1ºC of set temperature, Temperature Indication – Digital, Temperature Controller - PID Micro Controller with Auto Tuning facility, Temperature setting – Feather Touch Membrane keys, Extraction vessel – Glass, Collection vessel – 100 ml glass beaker, Extraction thimble – nitro cellulose (25 X 80 mm), Thimble Adoptor, Thimble Stand, **Independent sample loading with individual controls**, electrical requirement – 230v,50Hz, AC Mains. **Safety Features: Auto Over Temperature Protection, Auto Sensor Break protection, Auto Error Indication, etc. Quote for Additional One set Beaker and Thimble Box** **Alternative 2:** **FOUR PLACE AUTOMATIC SOLVENT EXTRACTION SYSTEM. MODEL SCS 4** Samples – Four, Heater source – **Casted Aluminium Alloy heaters**, Heater power – 2000 W, Temperature Range – 35ºC to 200ºC, Temperature Accuracy - +/- 1ºC of set temperature, Temperature Indication – Digital, Temperature Controller - PID Micro Controller with Auto Tuning facility, Temperature setting – Feather Touch Membrane keys, Extraction vessel – Glass, Collection vessel – 100 ml glass beaker, Extraction thimble – nitro cellulose (25 X 80 mm), Thimble Adoptor, Thimble Stand, **Independent sample loading with individual controls,** electrical requirement – 230v,50Hz, AC Mains. **Safety Features: Auto Over Temperature Protection, Auto Sensor Break protection, Auto Error Indication, etc Quote for Additional One set Beaker and Thimble Box** **Alternative 3:** **SIX PLACE AUTOMATIC SOLVENT EXTRACTION SYSTEM. MODEL SCS 6** Samples – Six, Heater source – **Casted Aluminium Alloy heaters**, Heater power – 3000 W, Temperature Range – 35ºC to 200ºC, Temperature Accuracy - +/- 1ºC of set temperature, Temperature Indication – Digital, Temperature Controller - PID Micro Controller with Auto Tuning facility, Temperature setting – Feather Touch Membrane keys, Extraction vessel – Glass, Collection vessel – 100 ml glass beaker, Extraction thimble – nitro cellulose (25 X 80 mm), Thimble Adoptor, Thimble Stand, **Independent sample loading with individual controls**, electrical requirement – 230v,50Hz, AC Mains. **Safety Features: Auto Over Temperature Protection, Auto Sensor Break protection, Auto Error Indication, etc. Quote for Additional One set Beaker and Thimble Box**

128.	Distillation Unit	**UDK 127 DISTILLATION UNIT, 230V/50Hz** Distillation Unit **for analysis of Kjeldahl Nitrogen, Protein Nitrogen, Nitric Nitrogen (after reduction), Phenols, Volatile Fatty Acids, Cyanides, Sulphur Dioxide, Alcohol content etc.** according to official procedures. **PROGRAMMABLE DIGESTOR DK6, 230V/50Hz** for up to 6 test tubes, 300 ml each. With built in temperature control by microprocessor an over temperature protection, user definable, time control, display LCD, complete with Tube Rack, heat shield and RS-232 connectivity. Temperature range : Room to 450° C Selectable Program : 20 programmes with 4 temperature ramp with each program Accuracy : ± 0,5°C Heating speed : 20 to 450° C in 30 minutes Selectable Time : 001 to 999 minutes Safety : 1) Over temperature cut off **2) Damaged Temperature probe Display visualized and acoustic signals.** Complete with with Scrubber , Water Recirculating Pump and following accessories : Test Tube 300 ml, 6 nos, Glass ware handle & heat shield Support system Suction Cap Stainless steel drop collector Stand for glass ware **Features & Benefits :** ➢ Automatic distillation ➢ Automatic steam generation with titanium condenser (patent pending) ➢ Automatic alkali addition ➢ Microprocessor controlled enabling to pre-program alkali addition. ➢ Water saving facility incorporated ➢ In accordance with (AOAC, EPA, DIN, ISO) to simplify validation. ➢ Safety features for operator safety, like safety door and tube in place safety. ➢ Alkali resistant technopolymer splash head for long lifetime. ➢ **Innovative titanium condenser (patent pending)** ➢ Digital LCD display ➢ Integrated timer for distillation time

129.	Double Decker Shaker	**<u>Model ROTEK LSV DD: Double Decker Laboratory Shaker Variable RPM</u>** **Designed specially for continuous non stop biological operation for uniform noiseless orbital motion,** * Shaking Frequency : Single Platform 50 - 375 rpm, *** with Double Platform 50 - 275 rpm,** * Shaking Accuracy : +/- 2% of set value, *Diameter of Orbital motion: 25 mm, • RPM Selection : Using Rotary Potentiometer, • RPM Indication: Digital, • Drive : Non belt eccentric pin guided drive enabling smooth and noiseless uniform orbital motion • Motor : Heavy duty permanent magnet DC geared Motor for continuous operation with an inbuilt tachogenerator attached to the rotor for accurate revolution, • Standard Tray Size : 420 X 420 mm (Double Decker), • Tray : Universal Tray (Double Decker) with interchangeable SS Clamps, • Timer Setting : Programmable Feather touch keys, • Timer Range: 0-99.59hrs (Settable in hrs,mts, sec), Timer Display : Digital, • Display Parameters : Set time, Actual time, *Inbuilt Auto start Mechanism: At times of power outage, The system automatically restarts functioning from the previous set RPM. Superior electronic speed control: Pulse width modulation technique enables considerable energy saving making the system draw required power at various speed * External double powder coating - Anti corrosive paint with bottom wheels and lock mechanism for easy movement, • RPM Deviation: The shaker gives an alert indication & alarm signal with indication if there is a error in rise or fall of rpm by + 5 rpm than the actual set rpm, * Incorporates anti vibration mount to prevent movement at higher rpm, * Electrical Requirement:230V,50Hz, Single Phase, Includes Clamp Capacity : SC 250 : SS Clamps for 250ml Erlenmeyer flask (42 Nos.) - 21 in each tray. **OR** **Steelmet make Model : Super Heavy Duty Two Tire Illuminated Rotary Shaker** Capacity : Upper tier for 64 flasks of 2000 ml. Capacity Lower tier for 64 flasks of 2000 ml capacity Platform size: 60” x 60” Overall dimension : 60” x 60” x 45” Rotary stroke : 50 mm fixed Speed : 50-170 rpm Controlled by A.C. Frequency Drive Indication : Digital Mechanism : Five Crankshaft Assembly with Electric Motor of 0.5 H.P. Delta AC with 1400 rpm **OR** JSR/ MRC make

130.	Double Door Deep Freezer	Thermo Forma USA. Towa Optics Pvt Ltd. **EXTERNAL DOUBLE DOOR FREEZER with INDEPENDENT LOCKING SYSTEM**. TYPE:Vertical Temperature : -50°C to -86°C Capacity : 368.1 to 792.8 Liters Two 1H.P. Compressors with High BTUH 2545 with minimum Five years warranty. Stainless Steel Interior. Life time warranty on the cabinet Eye level display and temperature chart recorder on eye level. Triple point silicon gasket for tight sealing to avoid condensation/ice formation. Built – in Automatic high and low voltage compensator. Built in vacuum relief port for easy re-entry after door opening. Condenser hot indication on panel... Alarm for power failure, probe failure,clean filter, door open etc. Thick insulation on cabinet of 127 mm, 110on door and 45mm on lid Two independent lockable doors with four inner campartment and specially ergonomic design of handle/lock for ease of opening and closing of door. Should meets US FDA guidelines : cGLP 21 CFR Part 58, Software Validation 21 CFR Part 820 and Electronic Recorder 21CFR Part 11. <u>Optional Accessories</u> Servo Controlled Voltage Stabilizer.racks , etc

131.	DNA Analyzer & Sequencer	**(APPLIED BIOSYSTEMS/LICOR/EQUIVALENT WORLDWIDE RECOGNIZED MAKE SYSTEM)** • Fluorescence-based four capillary (upgradable to 16 capillary) Genetic Analyzer / DNA analysis system to support a variety of molecular applications including sequencing and DNA fragment (AFLP; SSR; SSCP ; SNP) analysis with resolution of up to 1bp; • Fully automated sample loading to data analysis; • Electrophoresis voltage should range from 100 V up to 15 kV with operating temperature range of the capillaries suitable for sequencing and DNA fragment analysis; • Argon-ion laser excitation based CCD detection; • System capable of using /96-well plate kits; • Instrument based on liquid flowable polymers as the separation matrix with automatic replenishment of the capillary; • Multiple lengths capillaries for multiple applications; • Up to 5 dye detection system; upgradeable to incorporate future dye sets and chemistries without any hardware changes; • Supplied with necessary consumables for 2000rxn DNA fragment analysis and 1000rxn of sequencing (polymer; buffer; sample tubes; septa; size standards, deionized formaimide; • Accessory spare parts viz. electrodes, valves; syringes etc. should be supplied in duplicate; • The system should be supplied with ddNTP based sequencing kits for long run; DNA Fragment Analysis Reagents: (Heat Start Taq DNA polymerase, AFLP preselective & selective amplification kits, SNP kits) • Supplied with a computer workstation for instrument control and data analysis loaded with necessary software for sample ID import, instrument control and data collection; Computer with minimum 80 GB HDD,512 MB RAM, Built in DVD-RW/CD-RW combo drive and 19inch Flat panel display and high resolution color deskjet printer should be provided. • Sequencing Software for Basecalling and Gene fragment Analysis software to perform fragment size detection, linkage & mapping software, heterozygosity detection software; SNP detection software. • Softwares for fragment sizing and alignment of analyzed samples together; • Power Requirements: Voltage 200-220V or 230-240V +/- 10%, 50/60HZ +/- 10 % Current: Maximum 15 amps. • It should be supplied with electric backup system based on lead batteries capable of handling the system in power failure for atlease 6 hours. • The company supplying the instrument should have proven capability demonstrated in the past in after sales service and complete support as for as the • Application systems of the machine. • The supplier should have the facility for comprehensive training on the operation of the instrument, software and Applications Support in India.

132.	DNA Sequencer with Biovis	Gel 2000 M4 (B) Integral hour function (C) desktop placing or Wall Hanging- Alaram function, Clock calender function
133.	DO Meter	**Thermo Electron Corpn., USA make** **Orion 3: Star Dissolved Oxygen Benchtop Meter Kit : Cat No. 1113001** **Specifications :** Range (Concentration) : 0.00 to 90.0 mg/L Accuracy : + 0.5%, Salinity Factor : 0 to 45 ppt Barometric Pressure Range : 450 to 850 mm Hg Probe Type : Polarographic **Temperature :** Range : -5 to 105^{0}C Resolution : 0.1 upto 99.9^{0}C, 1.0 over 99.9^{0}C Relative Accuracy : ± 0.1^{0}C Temp. compensation : Auto **Display** : Custom blacklit LCD, for easy viewing **Power :** Universal power adapter and battery power 4 x AA batterie **Environmental Operating Conditions** Ambient Operating Temperature : 5 to 450C Relative Humidity : 5 to 85% Non-Condensing IP Rating : IP54, splash proof and dustproof **The Meter Kit includes** Cat No.081010MD : DO Probe Probe Type : Polorographic Mini. sample flow:20 m / sec Cable Lenghth : 3 m Cat No.970802 : Overflow funnel W/stir box Cat No. 080113 : Probe Service Kit Cat No.080017 : DO cal sleeve, A series probes Cat No. 1110001 : Electrode stand
134.	Double Ring Infiltrometer	Complete Infiltrometer apparatus with one inner ring 30 cm diameter, one outer ring 45 or 60 cm diameter, Height of each ring 30 cm, driving plate with hammer weight and guiding rod, water level gauge.
135.	Drum Dryer	Suitable for drying of liquid foods Drum diameter : 305 cm, Drum length : 203 mm, Heating area of one drum : 0.19 m2, Steam consumption : 1.5 kg dry saturated steam at 7 bar/kg of evaporation
136.	Dryer (electrical)	Make : Varaj Company, Pune / Rotex Industries, Pune

137.	Dry Powder Filling Machine	Auto powder level maintaining system with minimum wt. variation Digital display for quick setting of fill weight Instant break mechanism for fill cof. With accuracy ± 2 % Table Model All Powder content parts made up of stainless stell 316 or non-contact parts of 304 quality steel Out put > 500 bottles / pouches / hr. Wt. > 150 kg.
138.	Dualex 3 Series FLAV VERSION	The patented technology used in the Dualex 3 Series should be based on the Chlorophyll Fluorescence screening. It should be insensitive to variable Chlorophyll Fluorescence and independent of Chlorophyll Content. The measurement should be non-destructive, rapid and simple, no calibration or source adjustment. No sample preparation and measurement performed under ambient light. Dualex 3 FLAV version leaf clips measure quantitatively the absorption of the leaf epidermis - in the UV-B at 315 nm for the HCA version Or - In the UV-A at 375 nm for the FLAV version Or - In the visible at 530 or 590nm for the ANTH version For a rapid quantitative estimation of flavonoids in fruits, vegetables (leaves and peels), tea leaves, medicinal and aromatic plants, as: **Specifications:** Measured object : Plant Leaves Option: berries or peels Measured parameter : Epidermal optical absorbance Measured area : 5 mm diameter Max insertion depth : 70 mm Absorbance range : from 0.0 to 3.0 Absorbance accuracy (Standard deviation : < 0.01 Acquisition time : < 500 ms Light sources : 2 light-emitting diodes (LED): UV-B or UV-A or Red Detector : 1 Silicium Photodiode Storage capacity : 40 000 multiparametric data : 2x16 alphanumeric LCD panel Sound warning for registered data Data Interface: Serial port User's Interfaces Option: Serial-USB converter

		Temperature range : 5 –35°C (operation) for a variation of absorbance below 2% Power Source : Li-ion rechargeable batteries Power autonomy : 10 hours Maximum charge time 2 hours Total weight : 95 g (with battery) Leaf clip size 185 x 43 x 33 mm Case size : 150 x 100 x 55 mm Optional adapter for non-chlorophyll-bearing samples : Solid fluorescents film Supplied complete with • Leaf clip and electronic case • CD-ROM with data transfer software • Serial cable for data transfer • Serial – USB conveter • Battery charger • Calibrated optical filter for test • User's manual • Transportation case
139.	Electricity Lab Kit	Scientific make : NV 6000 Kit inclusive of studies for sinusoidal response of RL series circuit, power factor improvement.

140.	Electronic Balance	**Contech make** CA – 123 120 gm – 1 mg – 100 pan size CA –223 220 gm – 1 mg - 100 pan size CA –323 320 gm – 1 mg - 100 pan size CA –413 410 gm – 1 mg - 100 pan size CA –503 500 gm – 1 mg - 100 pan size CA –350 350 gm – 0.0 1 g - 100 pan size CA –600 600 gm – 0.0 1 g - 100 pan size **OR** Make: Citizen Model: CY-220 Capacity:220g SENSITIVITY: 0.001g , Pan size; 128 x 128 mm **OR** Anamed make : Model AA-2400 Z-400, Capacity - 100 gm, Sensitivity – 1 mg, Pan size – 100 mm **OR** **Wiggen Hauser Make** Capacity : 200g Readability : 0.00019 Pan size : 90 mm

141.	Electronic Copyboard M – 11S	**(Board , Print , Memory , PC Connectivity, Environmental Conditions, Power, size, Standard Accessories)** **Panel Size** :- H920 x W1300 mm (51.2 x 36.2 inches) **,Copy Area** :- H900 x W1280 mm (50.4 x 35.4 inches), **Number of Panels** :- 2, **Panel Driving Method One** :- Direction Endless Drive (Motorized / Manual) ,**Grid** :- 50mm (2 inches) Squares, **Writing Instruments** :- Dry Erase Whiteboard Markers (Black/Red/Blue/Green),**Image Sensor :**- CCD Optical Sensor (RGB LED),**USB Port** :- 3 Port Lower Part of Board: A-Type 1 Port (for Printer), B-Type 1 Port (for PC) Control Panel: A-Type 1 Port (for USB Flash Memory), **Print Method:-** Inkjet printer - Lexmark Z645,**Paper:-** A4 Size (210 X 297mm) / Letter Size (8.5 X 11 inches) Plain Paper , **Colors:-** Color or Black**, Print Density:-** 300 dpi, **Interface:-** USB 1.1 or USB 2.0 full-speed mode*2 **Memory Type:-** USB Flash Memory*3 **File Format:-** PNG and PNG Related HTML*4 **Interface:-** USB 1.1 or USB 2.0 full-speed mode*2 **File Format:-** PNG/BMP/JPEG/TIFF*5 **Support OS:-** Microsoft Windows 2000 Professional(Service Pack 4 or Later)/XP (Home Edition / Professional Edition Service Pack 2 or Later),**Temperature**:- 100c - 350c (Operating), **Humidity:-** 30 - 85% (No Condensation) **Power Source:-** AC100V-240V, 50-60Hz*6 **Power Consumption:-** 7W or Less (Standby), 7W (Power-on), 40W (Operation), **Size Outer Dimensions:--** W1470 x D700 x H1970(max) mm **Size (with stand):-** (W57.9 x D27.6 x H77.6 (max) inches, **Weight (without Printer):-** 39kg / 86.0lb **Installation:-** Stand / Wall-Mount, **Standard Accessories:-** Markers (Black, Red, Blue, Green), Eraser, AC Adaptor, USB Cable (3m length), Wall Mounting Brackets and Screws, User's Manual, Set-up Manual, Paper(5 Sheets for Test Printing), CD-ROM (TWAIN Driver, Plus Image Viewer Ver.2, Set-up Utility, User's Manual (PDF)

142.	Electro Blotting Systems Cleaver Bioscience UK	**A)VS 10CBS Complete system for Mini Vertical(10x10cm) Electrophoresis and Blotting Comprising** 1x omniPAGE Mini Vertical Unit which includes: 2x2mm thick Notched glass plates, 2x2mm thick plain glass plate with 1mm Thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 12 samples), 1x casting base, silicon mat, cooling pack. Plus: 1x Electroblotting module which includes : internal electroblotting module, 3x compression cassettes for gel sizes up to 10x10cm and 6x fibre pads. **B) VS 20CBS Complete system for Maxi Vertical(20x20cm) Electrophoresis and Blotting Comprising** 1x omniPAGE Maxi Vertical Unit which includes: 2x4mm thick Notched glass plates, 2x4mm thick plain glass plate with 1mm Thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 24 samples), 1x casting base, silicon mat, cooling pack. Plus: 1x Electroblotting module comprising : internal electroblotting module, 3x compression cassettes for gel sizes up to 20x20cm and 6x fibre pads. **C) VS 10WCBS Complete system for Mini wideVertical(20x10cm) Vertical Electrophoresis and Blotting Comprising** 1x omniPAGE Mini wide Vertical Unit which includes: 2x4mm thick Notched glass plates, 2x4mm thick plain glass plate with 1mm Thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 24 samples), 1x casting base, silicon mat, cooling pack. Plus: 1x Wide Electroblotting module (20x10cm) which includes : internal electroblotting module, 3x compression cassettes for gel sizes up to 20x10cm and 6x fibre pads.
143.	Electrophoresis Horizontal & Vertical with power pack	Make Scie-plas Model-HU-13W Unit dimension – 30 x 30 x 6.5 cm, Gel dimension – 23 x 14 cm, Runs up samples-200, Combs-12,16,20,24,28,40,50, Thickness 1, 1.5 and 2.0 m.m., Gel casting tray- 20 x 14 cm, 2 cambs – 25, samples- 1mm, Buffer- recirculution pert, colour code stripe, Polyacrylomite, agarose, external gel casting unit, operating temp – 4 to 65^0C
144.	ERDAS Image Processing Software (Remote Sensing)	ERDAS Image Processing Software (Single user licence) ERDAS Imagine Professional Ver **OR** ERDAS Imagine Virtual GIS Ver **OR** ERDAS Imagine Auto Sync Ver

145.	Electroporator	• Electroporator capable of transformation in wide range of bacteria by high voltage electroporation (1000-2500 V common) into resistant media (10% glycerol). • Delivers optimal pulse for electro-transformation with 5 M sec time constant from fixed resistor and capacitor • Use 0.1ml cuvettes for optimal high field strength • Microprocessor controlled, calculated and display system • Power supply 220V/60 Hz **OR** **Bio Rad, U.S.A. make** **A) Cat No. 165-2100** MicroPulser Electroporator, Include a cuveetes chamber with leads, 10 sterile cuvettes(s each of 0.1 ch and 0.2 cm gap) **Specifications –** **Input Voltage :** 100-120 V or 220-240 V **Maximum output voltage and current:** 3000 V peak into > 600 W **Load ;** limited at 100 A peak maximum . **Out put Waveform :** Decaying or truncated – decaying expoantial waveform with RC time constant Output **Voltage and Pulse duration adjustment :** Voltage adjustable **In 200-3000 V range with 10 V precision :** 50ms default or 1-4ms with 0.1ms precision ; 5 bacteria and 5 fungal preset programs. **Ambient Operating Temperature :** 3.5-35 Deg. C **Dimentions :** (W x Dx H) 29 x 21 x8cm **Weight :** 2.9 kg **B) Cat No : - 1652088** Gene Pulser Cuvettes 4 mm electrode gap .50 sterile **C) Cat. No : - 1652086** Gene Pulser Cuvettes 2 mm electrode gap .50 sterile **D) Cat. No : - 1652089** Gene Pulser Cuvettes 1 mm electrode gap .50 sterile
146.	ETC Solar Water Heater	Svam Systems make OR MNES/ MEDA/ MNRE approved any make, 250 lpd, evacuated tube collector with all glass concentric dual tube geometry, borosilicate glass conforming to ISO 3585, outer tube dia. 47mm (+/-) 0.7mm, inner tube dia. 37mm (+/-) 0.7mm, tube length 1500 mm(+/-) 5.0 mm

147.	Electro Blotting System	**Electro Blotting Unit with Power Pack , Biorad, USA** Electrophoresis Blotting Systems. Mini Trans-Blot Cell, Cat. No. 170-3930 Mini-Trans blot Electrophoretic Transfer Cell Includes: 2 Gel Holder cassette, 4 fiber Pads, Modular electrode assembly, Bioice cooling unit, lower buffer tank, lid with cable, instruction. Cat No. 1645050 Power Pac Basic Power Supply, 220/240V Specification **Output Range:-** 10-300V, fully adjustable in 1 V steps, 4-400mA, fully adjustable in 1mA steps75w maximum • Type of output : Constant voltage, constant current with automatic crossover • Output Terminals: 4 pair recessed banana jacks floating in parallel • Timer : 1-999min, fully adjustable, Pause/resume run function : Yes, Display : LED • Operating conditions: 01-40 deg C; 0-95% humidity in the absence of condensation • Safety compliance : EN-61010 • EMI : Conforms to CE standards for Emissions and Immunity class A, tested only at 230V; TUV EMC certification • Safety features : No load detection, sudden load change detection, overload/short circuit protection, input line protection, auto power up after power failure • Input protection : Fuse on both hot and neutral • Input power (actual) : 90-120 or 198-265 V AC, 50 or 60 Hz, Autoswitching • Dimension : 21x24.5x6.5cm (WxDxH), • Weight : 1.1 kg **OR** **A)VS 10CBS Complete system for Mini Vertical (10x10cm) Electrophoresis and Blotting Comprising** 1x omniPAGE Mini Vertical Unit which includes: 2x2mm thick Notched glass plates, 2x2mm thick plain glass plate with 1mm Thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 12 samples), 1x casting base, silicon mat, cooling pack. Plus: 1x Electroblotting module which includes : internal electroblotting module, 3x compression cassettes for gel sizes up to 10x10cm and 6x fibre pads. **B) VS 20CBS Complete system for Maxi Vertical(20x20cm) Electrophoresis and Blotting Comprising** 1x omniPAGE Maxi Vertical Unit which includes: 2x4mm thick Notched glass plates, 2x4mm thick plain glass plate with 1mm Thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 24 samples), 1x casting base, silicon mat, cooling pack. Plus: 1x Electroblotting module comprising : internal electroblotting module, 3x compression cassettes for gel sizes up to 20x20cm and 6x fibre pads.

	Contd….	**C) VS 10WCBS Complete system for Mini wideVertical(20x10cm) Vertical Electrophoresis and Blotting Comprising** 1x omniPAGE Mini wide Vertical Unit which includes: 2x4mm thick Notched glass plates, 2x4mm thick plain glass plate with 1mm Thick bonded spacers, 1x d ummy plate, 2x combs (1mm thick 24 samples), 1x casting base, silicon mat, cooling pack. Plus: 1x Wide Electroblotting module (20x10cm) which includes : internal electroblotting module, 3x compression cassettes for gel sizes up to 20x10cm and 6x fibre pads **OR** **Biorad U.S.A make : Mini Trans- Blot Cell, Cat.No. 170-3930** Mini-Trance blot Electrophoretic Transfer Cell Includes : 2 Gel Holder cassette, 4 fiber Pads, Modular electrode assembly, Bioice cooling Unit, lower buffer tank, lid with cable, Instruction. **Cat.No. 1645050, PowerPac Basic Power Supply, 220/240V** **Specifications** **Output Range (prtogrammable) :-** 10-300V, fully adjustable in 1 V steps 4-400mA, fully adjustable in 1mA steps 75w maximum • **Type of output** : Constant voltage, constant current with automatic crossover • **Output Terminals** : 4 pair recessed banana jacks floating in parallel • **Timer :** 1-999min, fully adjustable • **Pause/resume run function :** Yes • **Display :** LED • **Operating conditions :** 0-40 deg C; 0-95% humidity in the absence of condensation • **Safety compliance :** EN-61010 • **EMI :** Conforms to CE standards for Emissions and Immunity class A, tested only at 230V; TUV EMC certification • **Safety features :** No-load detection, sudden load change detection, overload/short cicuit protection, input line protection, auto power up after power failure • **Input protection :** Fuse on both hot and neutral • **Input power (actual) :** 90-120 or 198-264 V AC, 50 or 60Hz, Autoswitching • **Dimension :** 21 x 24.5 x 6.5 cm (WxDxH) • **Weight :** 1.1 k

	Contd…	Elctro Blotting Unit With Power Supply ATTO ,JAPAN MAKE BLOTTING UNIT Model AE-6675L HorizBlot High Efficiency Semi Dry Transfer Blotting for Protein, DNA /RNA gels ,Size of Electrode : 20 x 20 cm , Distance of Electrode : upto 55 mm ,Material : Acrylic plastic, except stainless steel for cathode & platinum - plated titanium for anode. Supplied complete with blotting unit, power leads and 20×20 cm filter paper, 100 pcs. POWER SUPPLY Model AE-8300 Crosspower 150, 230V 150 V, 4000 mA,, Output : Constant voltage or current with automatic crossover Output range (Dual range): , Voltage range : 1 to 150 V or 1 to 75V, Current range : 0.01 to 2.00 A or o.01 to 4.00A ,LED Display , Outlet : 2 in Parallel, protection complete against any overload abnormal circuit or load and are discharge
148.	Electoantennogram (EAG) System	Syntech (Made in Netherlands) **System consist the following** : **MP – 15 :** Micromanipulator with Combi EAG probe **CS-55 :** Stimulus confroller unit with built in air pumps **ST-02** : Stimulus applicator **IDAC-232** : 2 channel serial data acquisition interface (will connect directly to serial port of PC, auto and manual offset control and filter functions. **EAG Pro :** Software for EAG recording Micro Dissecting Scissors, Type 4040 Micro Dissecting scissors. **Type TW-1** set of two electrode holders **Optional Accessories**: Data Acquioition System
149.	Electronic Direct Shear Test Apparatus	Motorized operations for direct shear measurement. Specimen size 60x60x25 mm. Rate of strain 0.0002 – 1.25 mm/ min. with complete accessories comprising of weights, shear box assembly with electronic conversion and digital display. Testing as per IS 11229 and 2720 part 13.
150.	Electronic Lysimeter	**Make: Avery India Limited** Electronic lysimeter with heavy duty platform of 5 tonne capacity Size of platform: 2.5 x 2.5 x 1.5 m or 1.8 x 1.2 x 1.5 m Digital weight indicating system with load cells centrally located at beneath of platform. Increments of weight: 0.01 kg. Facility to connect with data logger or with printer or computer, memory to store/calibrate data.

151.	Electron Microscope Type	Electron Microscope Type	:	Variable Vacuum Airlock Specimen Exchange based High Resolution Scanning Electron Microscope
		Resolution	:	3nm at 30 KV(High Vacuum) or better 4nm at 30 KV (Low Vacuum) or better
		Accelerating Voltage	:	0.3 KV to 30 KV
		Magnification	:	X5 to X 3,00,000
		Detectors	:	Secondary Electron Detector & High sensitivity Back Scattered Electron (Semi conductor type) Detector
		Vacuum of Specimen Chamber	:	Variable
		Vacuum Range		Up to 270 Pascal
		Vacuum System	:	Fully Automated Turbo Molecular Pump with Rotary Pump. Pump capacity & pumping down time from cold start & specimen exchange time to be indicated
		Filament	:	Factory pre-centered Tungsten Cartridge Filament
		Electron Gun	:	Auto Gun & manual override through control panel
		Objective lens Aperture	:	3 or 4 apertures – Movable & adjustable from out side
		Specimen Stage	:	Large Compu-Eucentric Type
		Specimen Stage Movement:		
		X Axis	:	80mm or more
		Y Axis	:	40mm or more
		Z Axis	:	5-35mm or more
		Tilt Angle	:	-20 to 90 deg
		Specimen stage control	:	Manually controlled
		Max. Specimen size		200mm dia or better & 35mm height or better
		Specimen Holder	:	Single and Multi stub specimen holders
		Control System	:	PC control with manual override through control panel / Rotary knobs
		Auto Functions	:	Auto Gun Control, Auto Beam Alignment, Auto Focus, Auto Brightness & Contrast, Auto Stigmator and Auto Focus compensation for probe current variation, Auto Start, Auto Photo Mode and Full Auto Mode & Auto Axial Alignment
		No. of Ports	:	10 or more for future expansion
		Software Features	:	Multi user software (at least 3 licenses) with GUI, Instrument status display, Montage, Navigation, Report edition, Measurement and Pseudo Color
		Image Display	:	2 or 4 Images, should be capable of displaying composition and topography images
		Image Resolution/Data Saving		Upto 5120 x 3840 Pixels
		Protections	:	Should incorporate all necessary protections
		Power		All components including sub-systems, accessories and computers should operate on 220 volts, 50 Hz electric power.

152.	EC Meter	Make: Elico Model:CM183, EC TDS Analysis with ATC probe and Conductivity cell **OR** INDOSAW make
153.	Electroblot / Trans Blot - (Western) unit	Biorad. Overall dimension : 37 x 24 x 11 cm Buffer requirements : 200 ml Max gel size :20 x 18.5cm Powerpack output : 250 V, 300W Output range - 50-250v fully adjustable Timer - up to 99hr, 59 min. Display - 2line.
154.	Electrophoresis System	❖ **Vertical Electrophoresis System** Gel size : 13.8 cm wide x 13cm long Gel thickness : 1 mm Sample well : 12 Plate size : 16 x 16 cm Gel accommodation : 1 gel Buffer volume : 300 + 350 ml Plate Size : 16 x 16 cm Should include Pressure platen, without the use of screws or clamps, Power Leads. mechanism. ❖ **Horizontal Gel Electrophoresis :** Gel Size: 12 x 16 cm Gel thickness: upto 8 mm Comb thickness: 1mm, double-tooth comb 26 & 13 wells. Should be supplied with Electrophoresis chamber incl. safety lid with power leads, 12×16 cm gel tray with 2 dams, comb holder, double-tooth comb for 1 mm, 26 & 13 wells **Power Supply** : 1 to 300 V, @ 1V, 1 to 400 mA, @ 1 mA., Automatic Crossover

	Contd…	**OR** **2D Electrophoresis System, Cleaver Bioscience UK** **A) VS 10C2DS Complete Mini 2-D System Comprising** 1x omniPAGE Mini Vertical Unit which includes: 2x2mm thick Notched glass plates, 2x2mm thick plain glass plate with 1mm Thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 12 samples),1x casting base, silicon mat, cooling pack, Plus: 1x Capillary electrophoresis module which includes : internal running module for tube gels, Capillary tubes, blanking plugd,2-D combs and Spacers. **B) VS 20C2DS Complete Maxi 2-D System Comprising** 1x omniPAGE Maxi Vertical Unit which includes: 2x4mm thick Notched glass plates, 2x4mm thick plain glass plate with 1mm Thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 24 samples),1x casting base, silicon mat, cooling pack. Plus: 1x Capillary electrophoresis module which includes : internal running module for tube gels, Capillary tubes, blanking plugd,2-D combs and Spacers. **C) VS 10WC2DS Complete Mini Wide 2-D System Comprising** 1x omniPAGE Mini wideVertical Unit which includes: 2x4mm thick Notched glass plates, 2x4mm thick plain glass plate with 1mm Thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 24 samples),1x casting base, silicon mat, cooling pack, Plus: 1x Capillary electrophoresis module which includes : internal running module for tube gels, Capillary tubes, blanking plugd,2-D combs and Spacers. **OR** 2D ELECTRPHORESIS SYSTEM WITH POWER PACK ATTO ,JAPAN MAKE : Model AE 6530 Gel size : 9 x 8 cm (Dual) Gel thickness : 1mm Plate size : 120 x 102 x 7mm Buffer volume : 80 + 420 ml ; Sample well : 12 wells POWER SUPPLY Model AE8135 Constant output : 1 to 300 VDC @ 1V 1 to 400 mA @ 1 mA Output : constant voltage and constant current Automatic crossover Timer : 1 to 999 minutes with alarm buzzer Power outlet : 2 pairs in parallel Display : LED digital Safety protection : Automatic output shutdown, against short or open circuit.

155.	Electrphoresis (Mini Protien)	Gel size : 9 x 8 cm (Dual), Gel thickness : 1mm , Plate size : 120 x 102 x 7mm Buffer volume : 80 + 420 ml ; Sample well : 12 wells POWER SUPPLY Constant output : 1 to 300 VDC @ 1V, 1 to 400 mA @ 1 mA Output : constant voltage and constant current Automatic crossover Timer : 1 to 999 minutes with alarm buzzer Power outlet : 2 pairs in parallel Display : LED digital Safety protection : Automatic output shutdown, against short or open circuit.
156.	Electronic Tacho meter	Agarwal Electronics, Pune make, (Hand/ Batery operated, 5 digit, accuracy of ± 0.05 % ± 1 digit, quartz crystel time bas, memory of last, maxi. & Minimum readings) Size 75 mm (M) x 40 mm (H) x 200 mm (D), 280 gms.
157.	Electrophoresis System with Power Supply (Horizontal and Vertical)	**ATTO , Japan Make** **Model 6111 Horizontal Gel Electrophoresis :** Gel Size : 12 x 16 cm. Gel thickness : upto 8 mm. Comb thickness : 1mm, double-tooth comb 26 & 13 wells. Should be supplied with Electrophoresis chamber incl. safety lid with power leads, 12×16 cm gel tray with 2 dams, comb holder, double-tooth comb for 1 mm, 26 & 13 wells **Model 6210 & 6200 Vertical Electrophoresis System** Gel Casting Unit Gel size : 13.8 cm wide x 13cm long Gel thickness : 1 mm Sample well : 12 Plate size : 16 x 16 cm Should be supplied with glass plates, gasket and comb. Slab Gel Chamber Gel accommodation : 1 gel Buffer volume : 300 + 350 ml Plate Size : 16 x 16 cm

	Contd…	Should include Pressure platen, without the use of screws or clamps, Power Leads. mechanism. **Model 8130 Specification Of Power Supply** **Power Supply** : 1 to 300 V, @ 1V, 1 to 400 mA, @ 1 mA. Automatic Crossover Maximum Output : 50 VA Timed Output : 1 to 999 minutes, @ 1 min. alarm buzzer or Continuous output Display : 3 Digits. 1 Line for Voltage. 1 Line for current and time selectable. Power outlet : 2 pairs in parallel. Power Failure Detection (PFD) function. Automatic Recovery System Safety protection : automatic output shutdown, against short or open circuit, with alarm buzzer **OR** **ATTO, Japan make :** Plate size – 18 × 16 cm., It should have Dual gel casting stand with leveling base and level. Buffer dam Plate separation tool Heat exchanger and buffer circulator 0.75 mm and 1.00 mm thick spacers 15 well, 0.75 mm thick comb (2 Nos.) 15 well, 1.00 mm thick comb (2 Nos.) 20 well, 0.75 mm thick comb (2 Nos.) ix) 20 well, 1.00 mm thick comb (2 Nos.) x) 4 sets of glass plates xi) 18 × 16 cm club sandwich divider (2 Nos.) xii) All the essential accessories Unit of seie-plas UK base company, Bitron. The Instrument is highly sensitive and is suitable for PEQ Laboratory. **OR** **Make Scie-plas : Model-HU-13W** Unit dimension – 30 x 30 x 6.5 cm, Gel dimension – 23 x 14 cm, Runs up samples-200, Combs-12,16,20,24,28,40,50, Thickness 1, 1.5 and 2.0 m.m., Gel casting tray- 20 x 14 cm, 2 cambs – 25, samples- 1mm, Buffer- recirculution pert, colour code stripe, Polyacrylomite, agarose, external gel casting unit, operating temp – 4 to 65^0C.

158.		**2 D Electrophoresis System, Cleaver Bioscience UK** **A) VS 10C2DS Complete Mini 2-D System Comprising** 1x omniPAGE Mini Vertical Unit which includes: 2x2mm thick Notched glass plates, 2x2mm thick plain glass plate with 1mm Thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 12 samples), 1x casting base, silicon mat, cooling pack, Plus: 1x Capillary electrophoresis module which includes : internal running module for tube gels, Capillary tubes, blanking plugd,2-D combs and Spacers. **B) VS 20C2DS Complete Maxi 2-D System Comprising** 1x omniPAGE Maxi Vertical Unit which includes: 2x4mm thick , Notched glass plates, 2x4mm thick plain glass plate with 1mm Thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 24 samples), 1x casting base, silicon mat, cooling pack. Plus: 1x Capillary electrophoresis module which includes : internal running module for tube gels, Capillary tubes, blanking plugd,2-D combs and Spacers. **C) VS 10WC2DS Complete Mini Wide 2-D System Comprising** 1x omniPAGE Mini wideVertical Unit which includes: 2x4mm thick, Notched glass plates, 2x4mm thick plain glass plate with 1mm , Thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 24 samples), 1x casting base, silicon mat, cooling pack, Plus: 1x Capillary electrophoresis module which includes : internal running module for tube gels, Capillary tubes, blanking plugd,2-D combs and Spacers. **OR** **With power pack ATTO, Japan**. AE 6210 Slab gel cast (13.8 x 13 cm), including gel casting unit, Dual Slab Chamber, dummy plate SAE 8450 power station etc. complete **OR** **Technosource, India** **A) Vertical Gel Apparatus** • **Model- MICROKIN-(BD) :Cat. No.- 02-00143** (Ready to use system for bi-directional migration). The single sided unit includes an anodic tank (for in situ gel casting) and a cathodic tank, both fitted with connectors and electrodes (for bi-directional migration); a lid; notched and rectangular glass plates (gel size: L= 7.5 x W = 8.5 cm); two 1.5 mm thick slotted spacers; a PTFE comb (1.5 mm thick, 10-well, calculated vol. 75 µL / well); a set of clamps; an agarose dispenser; a gel – sandwich opener; a pair of connecting cords and an instruction manual. • **Model- MICROKIN :Cat. No.- 01-00000 (Ready to use system for uni-directional migration)**. A variable size (length, width and thickness) multiple sandwich gel electrophoresis apparatus with in situ casting. Includes a vented lid; a central electrode unit with two male connectors and polarized current flow; a tank; four 1.5 mm slotted spacers; two matched 12 well PTFE combs; two notched and two rectangular glass plates (13 x 14 cm); a glass plates stand; an agarose dispenser; a gel-sandwich opener; two buffer savers; a pair of connecting cords and an instruction manual. **B) Horizontal Gel electrophoresis apparatus** • **Model – SLEEKSUB : Cat No.08-00102, Model SLEEKSUB (Ready to use system for DNA and protein separations.)** Unit will include lid; tank (buffer capacity about 300mL) with opaque platform, connectors and electrodes (for uni directional migration); a tray of gel gripping design and a UV- transparent base (gel size 7 (w) x 10 cm); a niche cleaner; a comb stand (comb-height adjustable); a comb (10 well, 1.5 mm thick); connecting cords and an instruction manual • **Model – SLEEKSUB –R** **Cat No. 08-00105** **(Ready to use system for nucleic acid and protein separations).** Unit fabricated to exhibit greater resistance to cleaning reagents used in RNA analysis. System will include lid; tank (buffer capacity about300mL) with opaque platform, connectors and electrodes (for uni directional migration); a tray of gel- gripping design and a UV- transparent base (gel size 7 (w) x10 cm); a niche cleaner; a comb of connecting cords and an instruction manual

		• **Model – GELMARINER** **Cat No. 10-00152** **(Ready to use system for DNA and protein separations).** Unit will include lid; tank (buffer capacity about 400 mL) with opaque platform, connectors and electrodes (for uni directional migration); a tray of gel gripping design and a UV- transparent base (gel size 10 (w) x 15 cm); a niche cleaner a comb stand (comb – height adjustable); a comb (15 well, 1.5 mm thick); connecting cords and an instruction manual **Cat No.- 10-00155** • **Model GEL MARINER-R** **(Ready to use system for nucleic acid and protein separations).** Unit fabricated to exhibit greater resistance to cleaning reagents used in RNA analysis. System will include lid; tank (buffer capacity about 400mL with opaque platform, connectors and electrodes (for uni directional migration); a tray of gel- gripping design and a UV- transparent base (gel size 10(w) x 15 cm); a niche cleaner; a comb stand (comb-height adjustable); a comb (15well, 1.5mm thick); a pair of connecting cords and an instruction manual. • **Model GREYHOUND** **Cat No. 09-00220** **Ready to use system for DNA and protein separations).** Unit will include lid; tank (buffer capacity about1000mL) with opaque platform, connectors and electrodes (for uni directional migration); a tray of gel- gripping design and a UV-transparent base (gel size 15(w)x20 cm) a niche cleaner; a comb stand (comb-height adjustable); a comb (24 well, 1.5mm thick); connecting cords and an instruction manual. • **Model GREYHOUND-R.** **Cat No. 09-00205** **Ready to use system for nucleic acid and protein separations).** Unit fabricated to exhibit greater resistance to cleaning reagents used RNA analysis. System will include lid; tank (buffer capacity about1000mL) with opaque platform, connectors and electrodes (for uni directional migration); a tray of gel- gripping design and a UV- transparent base (gel size 15(w)x20 cm) a niche cleaner; a comb stand (comb-height adjustable); a comb (24 well, 1.5mm thick); a pair of connecting cords and an instruction manual. • **Model BISTRIP** **Cat No. 11-08168** **(**Accommodates six 3 x 1" glass slides or two 8 cm broad and 6 cm, 8 cm or 14 cm long cellulose acetate or flexible agarose strips.) Unit will include lid; tank (buffer capacity about 200mL), platform 16(w) x 8(1) cm, male connectors and electrodes in V- groove (for uni directional migration); a pair of connecting cords and an instruction manual **C) Power Supply** • **Model - Model ELECTRAGEL-50.** **Cat No. 24-01050** Dual mode (CV and CC) With auto- crossover; range upto 300V, 50mA, continuously variable over range. Includes: dual output; a digital display for mA and volts (resolution 1mA, 1V); protection of outputs against short – circuiting. Safety features: inbuilt constant – Voltage transformer to instantaneously stabilize voltage, filter out spikes and shutdown in case of frequency changes. Input V: 220" 10% at 50 Hz

159.	Electric Voltage Stabilizer	• **Model –ELECTRAGEL-100** **Cat No. 24-00100** Dual mode (CV and CC) With auto- crossover and active cooling of transistors; range up to 300 V, 100mA, continuously variable over range. Includes; two outputs in parallel; spike guard; independent digital displays for mA and volts (resolution 1mA, 1 V) safety features: inbuilt constant voltage transformer to instantaneously stabilizer voltage, filter out spikes and shutdown in case of frequency changes; protection of outputs against shor-circuiting; over – voltage tripping circuit to limit electronic component damage; active cooling of transistors. Input V: 220" 10% at 50 Hz **OR** **Spectronic Inc., USA Make : Model GL4001B** Gel Documentation System should be supplied High Resolution Digital Colour Camera with 10 Megapixel, 32 MB Memory Card, image sensor 1/1.8 inch Charge Couple Device (CCD), auto zoom lens 35 – 140 mm, Digital zoom approx. 4.0x (upto approx. 16x with optical zoom), real image zoom viewfinder, 2.0" TFT colour LCD monitor, digital lens adapter, Close-up lens, UV/IR filter, Universal Darkroom Hood, Image Acquisition Software, USB Interface cable and ImageAide Band Matching Image Analysis Software for gels, colony plates, spots, blots, PCR, molecular weight, dendogram, band matching etc. UV White Light Transilluminator (312nm), Variable intensity with Hinged UV Blocking Cover, Five 8 watt UV tubes,
160.	Electronic Water Level Recorder	Pressure Transducer with Datalogger and Battery housed in a tubular Stainless Steel Housing , Total submersible in the piezometer or open well with installation cable & hooks. Pressure Range : 0 to 120 Meter Accuracy : 0.1% FS 16,000 data and time stamped reading, up to 10 years battery life With Data retrieval system as Pocket PC with Software
161.	Electric Weighting Balance (Analytical)	Citizen make, ISO 9001 : 2006, CY 220, capacity 220 gm, Readability 0.001gm, Pan size 128 x 128 mm

162.	Electroportor 2510	**Eppendorf** **Time Constant** : 5 ms nominal with a sample impedance on 3.3 k Ω **Pulse Key :** Starts the charge/discharge procedure (press twice) **Act Volts Key :** displays the actual voltage delivered to the cuvette **Time constant key** displays the time constant f the discharge **Four digit display** **Internal calender and real-time clock.** **RS 232 interface** with the option of printing out or transferring to the computer the set voltage (SET), current voltage (ACT) and actual time constant of the discharge curve (TC) together with the sample number, date and time. **Accessories (Optional)-** Cuvettes Alluminium GAP 1MM (Set of 50) Cuvettes Alluminium GAP 2MM (Set of 50) Cuvettes Alluminium GAP 4MM (Set of 50)
163.	Electronic Logging Tensiometer System	The System should be able to monitor Soil Moisture Tension continuously , should be supplied complete with Tensiometer Transducer- 7Nos.with with 10 meter cable , Jet-filled Tensiometer with 15 , 30, 45, 60 , 90, 120 and 150 cm length, Field Station with Logger and other Accessories. Meter reader also should be supplied as an optional. Specification of Tensiometer Transducer and Tensiometer with ceramic cups: Voltage output: transducer has a 4 wire output signal. Data transfer for 30+ meters. Range: -100 to 200 kPa, Resolution: 0.1 kPa, Accuracy: ±1.0% span , Power Supply: 10.0 V DC, stabilized The Interface should be with mV output Smart Interface and minimum 10 meter cable for Logger interface. The following Tensiometer Reservoir should be supplied: Jetfill Tensiometer, Reservoir, Body & Cup 15cm , 30cm, 45cm , 60cm , 90cm , 120cm, and 150cm depth - No Gauge Field Station with Datalogging Instruments : Plug & Play Smart Logger. Standard 200 channels. Memory: 500,000 (4MB); Date & Time Stamped, High Resolution (16 Bit) readings. Includes :LCD display, 6V/7 Ahr battery, 110/240V (12V, 2.5Amp DC output) power supply, RS232 cable, embedded software for operation with HyperTerminal & user manual. Field Station should be supplied complete with enclosure , Mast and other accessories with Solar Panel. Data communication with GSM Telemetry and optional hard wired through RS232C Cable to Lap Top PC or Desk Top PC from Logger.
164.	Electronic Water Level Indicators	Eijkelkamp / HERON INSTRUMENTS Inc. Canada

165.	ELISA Kit	TECAN, Austria Make AGADIA USA ELISA Kits, Xanthomonas Compastris kits Xanthomonas indirect ELISA kit 1) Catalog No. XAN CAB 14600/0500 coating antibody-500 test wells 2) XAN ECA 14600/0500 conjugated antibody, ALK. PHOS. 500 test wells 3) BRA 14600/0500 Bacterial reagent set, ALK-PHOS- 500 Test wells
166.	ELISA Kit	AGADIA USA ELISA Kits ***Xanthomonas campestris* pv-*vesicatoria*** 1) Catalog No. XCV CAB 42300/0500 coating antibody-500 test wells 2) ECA 42300/0500 conjugated antibody, ALK. PHOS. 500 test wells 3) BRA 42300/0500 Bacterial reagent set, ALK-PHOS- 500 Test wells Bacteria (X.Campestris), Viruses and fungi
167.	ELISA Reader	**TECAN , AUSTRIA** **SUNRISE TS Microprocessor based Automatic Elisa Reader** to measure Open System for programming any Elisa Test. UV, Screening, **Advanced Kinetics, End point,** Curve-fit, Shaking – External & Internal with programmable time & speed Optical system 12 Measurement channels 1 Ref. Channel **Wave length range 340– 750 nm** Filters – 405, 450, 492, & 620 nm (Up-gradable up to 32 filters) **Absorbance range – 0 to 4.0 OD, Accuracy & Precision – ± 0.005 OD**, **Resolution – 0.001 OD** **Fully Robotic compatible** Measuring time – including self check Single Wavelength – 6 seconds, Dual Wavelength – 8 seconds, Kinetic repeat time – 5 seconds Large Built-in touch screen (120x89 mm) display for operation and display of results Serial Interface – RS 232 C Parallel Centronics, Onboard software Windows based Built-in Software with 32 MB memory card for data storage Auto curve transformation facility . Eight calculation modes which includes Facility for curve fit mode. (up to 8 Std) include lin-reg, pt-pt, cubic spline, 4 parameter fit, logit-log along with Lin/Lin Lin/Log, Log/Lin, Log/Log. 12 blanking options Onboard shaking with prog. time & speed Facility to recall programs and editing etc. Built in auto sensing power supply for voltage range 95-260 v Single halogen lamp with Lamp save feature, 1 million readings Lamp life is for 1 million measurements Software for self test and calibration

168.	ELISA Washer	**TECAN, AUSTRIA** **COLUMBUS M8/2CH MICROPROCESSOR BASED FULLY AUTOMATIC MICROPLATE /STRIP WASHER** 220V/50 Hz includes Built-in high power microprocessor numeric display Up to 30 methods stored for Easy recall and run Up to 9 different plate types Are programmable **Crosswise aspiration, overflow washing, bottom washing** **Automatic manifold detection** 8 channel manifold standard (12 or 16 channel optional) **Manifold, plate carrier autoclavable and also can be sterilized with Gluteraldehyde, Ethylene gas, Ethyl alcohol etc.** 1 – 4 liquid channels **2 wash liquid channels - standard** Vacuum power – software adjustable **No pressure system – independent** **From bottle size/type and any type of bottle can be used** Low noise system Shaking Dispensing speed – software adjustable Soak time : 1 to 999 sec. Volume of wash liquid dispensed 50 to 3000 ul with 50 ul increment Suitable for U,V & Flat bottom microplates etc Dispensing accuracy – CV <3% over plate Residual volume per well - 2ul Open software structure – built – in service menu Bottle set – 2x2.5 l
169.	ELISA reader with washer	Tekan naje. USA model through Biotron health care, Mumbai with complete operating system including all accessories
170.	ET 106 Evapotranspiration Monitoring Station (Campbell Make)	ET 106 / Enviro Station – ICTINTL. Australia Enviro station is a pre-configured weather station that calculates potential evaporation (ETO)
171.	Environmental Test Chamber	Environmental Tesat Chamber:Tempt Range O Deg C To 80 Deg C,Humidity 40% To 95% Rh, Tempt Control: Digital, Inner & Outer Chamber: Ss, Capacity: 8 Cu. Ft
172.	Ethylene Oxide Sterilizer	**YORCO make :** Cylindrical Model 250 (H) x 300 (w) x 800 (D) mm

173.	Evapotranspiration Monitoring Station	Data Logger & Accessories : Plug & Play Smart Logger. Standard 250 channels. Memory: 500,000; Date & Time Stamped, High Resolution (16 Bit) readings. Includes:LCD display, 6V/7 Ahr battery, 110/240V (12V, 2.5Amp DC output) power supply, RS232 cable, embedded software for operation with HyperTerminal & user manual. Databus Hub - Interface 14 channel, for use within LH3 Logger Housing ONLY Lockable Data Logger Housing (medium) , Sensor Shelter (to suit 3 sensors) , Upper Mast - 900mm length Lower Mast - 900mm length , Free Standing Base Assembly - to suit 2m mast , Cross Arm Assembly Solar Panel, 10 Watt 21 Volts , Solar Panel Mounting Kit for SX10M, (10 Watt solar panel) - suits 2m mast Sensors & Accessories : Wind Speed Sensor (Anemometer), 3 cup, Digital Range: 0.2-50 m/s, Accuracy: +/- 2% - 0.2m cable. Wind Direction Sensor, Digital Range: 0.01^{o} - 359.99^{o} Accuracy 0.5^{o} - 0.2m cable Air Temperature Sensor Range: $-20^{o}C$ to $60^{o}C$ Accuracy: $0.1^{o}C$ - 0.8m cable Global Solar Radiation Sensor with Sunshine hours function - 1m cable Barometric Pressure Sensor, Range: 800-1100 hPa Accuracy: 1 hPa 1m cable Relative Humidity Sensor Range: 0-100% Accuracy: +/- 2% - 0.8 m cable Automatic **Evapotranspiration Calculation** logged as a Virtual Sensor Automatic Dew Point Calculation logged as a Virtual Sensor Automatic Crop Water Stress Index calculation logged as a vertical sensor **Optional Accessories :** **GSM / CDMA** Data transfer facility
174.	Extensograph E	**Brabender make** With dough homogenizer, dough moulder, and temperature controlled relaxation cabinet, stretching device and electronical measuring system. The evaluation is carried out with a PC, via standard serial port (RS 232), the Extensograph software (72100) is included, Colour : RAL 9002 Mains supply: 230V, 50 Hz/60 Hz, A.C. 1-phase 115V, 60 Hz. 1-phase, Circulation Thermostat Type T 150 E

175.	ET Monitoring Station with Automatic Sensors	<u>Smartlogger & Accessories :</u> Smartlogger Plug & Play Smart Logger. Standard 200 channels. Memory: 500,000; Date & Time Stamped, High Resolution (16 Bit) readings. Includes:LCD display, 6V/7 Ahr battery, 110/240V (12V, 2.5Amp DC output) power supply, RS232 cable, embedded software for operation with HyperTerminal & user manual. Databus Hub - Interface 14 channel, for use within LH3 Logger Housing ONLY Lockable Data Logger Housing (medium) , Sensor Shelter (to suit 3 sensors) , Upper Mast - 900mm length Lower Mast - 900mm length , Free Standing Base Assembly - to suit 2m mast , Cross Arm Assembly Solar Panel, 10 Watt 21 Volts , Solar Panel Mounting Kit for SX10M, (10 Watt solar panel) - suits 2m mast <u>Sensors & Accessories :</u> Wind Speed Sensor (Anemometer), 3 cup, Digital Range: 0.2-50 m/s, Accuracy: +/- 2% - 0.2m cable. Wind Direction Sensor, Digital Range: 0.01^{o} - 359.99^{o} Accuracy 0.5^{o} - 0.2m cable Air Temperature Sensor Range: $-20^{o}C$ to $60^{o}C$ Accuracy: $0.1^{o}C$ - 0.8m cable Global Solar Radiation Sensor with Sunshine hours function - 1m cable Barometric Pressure Sensor, Range: 800-1100 hPa Accuracy: 1 hPa 1m cable Relative Humidity Sensor Range: 0-100% Accuracy: +/- 2% - 0.8 m cable **Automatic ET Calculation logged as a Virtual Automatic Sensor** Automatic Dew Point Calculation logged as a Virtual Sensor Automatic Crop Water Stress Index calculation logged as a vertical sensor **With Data Telemetry Accessories :** **GSM / CDMA** Data transfer facility

176.	Falling head permeameter	Falling head permeameter 5 fold type , with level adjuster and accessories.
177.	Farinograph E	With variable speed Electronic Torque Rheometer with 0.15 kw Dynamometer, with electronic torque measuring system Total measuring range 0-10 Nm Speed : 2-200 min^{-1} Speed Deviation 0% Safety control : Two hand operation with Creep speed when mixer is open Connection : Via USB port, to a PC Construction : Table-top unit Mains connecton : 230.240V, 50/60 Hz, 115V, 50/60 Hz, single phase A.C.2A Dimensions: Height 375 mm, Width 530 mm, Depth 810 mm, Weight Approx 75 kg (without mixer) including software, mixture measuring head, thermostat, Type T 150E
178.	Fermenter	Sortorious Make- (10 ltr. Capacity) Ideal for batch fermentation, vessel made up of pyrex glass (sterilizable), pH, DO and Antifoam, probes and control panels with peristaltic pumps, air flow recorder, operation temperature : 15 – 40^0C, stirrer : 100 – 1000 rpm with digital display, PC operated system to datalog temperature. **OR** **NAPRO Make** Total cap. 4L, working cap. 2.8 L. With RPM display, bottom driven seal-less and totally leak proof magnetic drive agitator with single impeller, display and control panel box, cooling finger type cooling arrangement, sparger port with sparger dip tube, vent port without reflex condenser, inoculation cum sampling port with dip tube, thermowell for temperature sensor insertion, port for pH sensor fitting with fermentor vellel body in stainless SS 316 (instead of SS304), reflux condenser in SS304/SS316, AC motor and variable frequency (ACVF) driv with digital RPM display (instead of universal motor and variac drive), temperature measurement with capital RTD PT-100 temperature censor and digial temperature indicator, automatic dueal pH control with autoclavable pH electrode and digital on/off type pH controller and 2 nos. peristaltic pump for acid and alkaline addition, Airflow loope components including the following items: Capsule type autoclavable air filters (2 nos.) for air inlet and exhaust, airflow rotameter with needle value for manual flow control, silicon tubing, diapharagm type oil free mini air compressor, thermal mass flow controller for automatic air flow control

179.	Fertigation Unit	**Ritec ,S.L. Spain Make : Model NUTRITEC 9000** The included fertigation controller should the ***NUTRITEC 9000*** unit, designed to control and supply fertigation solutions to the crops in MPKV Cropping System minimum 2 hectare of plot This controller includes up to 20 different fertigation programs, with up 9 different irrigation starts, irrigation programming by time, irrigation start by external signals (up to six) like start irrigation tray (optional) or Tensiometer or Soil Moisture Sensors, solar radiation sensor (optional), irrigation by volume using a watermeter with pulse emitter should be included. To inject the fertilizers the system uses venturi injectors, including each one of them one manual valve, flow meter, non return valve and one electric valve, controlled directly by the ***NUTRITEC 9000*** unit. The unit can control up to 8 different fertilizers (if needed), the mixing of the fertilizers with the water in the tanks, alarms… The included unit should be working by **SUCTION**, which means that unit uses the main irrigation pump to inject the fertilizers into the irrigation main pipe, so to avoid any problem the pressure must be negative in the suction pipe. For the fertigation control the ***NUTRITEC 9000*** unit includes four (4) injector for fertilizers and one (1) one for acid, each one of them able to inject 500 L/H, one (1) pH sensor and one (1) E.C. sensor and optionally the system can includes a second pH and E.C. sensor. The ***NUTRITEC 9000*** unit can also control the automatic backflush the filters (optional), auxiliary pressure units and optionally can also be controlled through a computer using the existing software (computer, COM card and software should be included in this System).
180.	Fiber Extraction System	**Velp Italy Make : FIWE 3 / 6 place** A system for determination of Crude and Detergent fibre and related parameters in accordance with Weende, van Soest and other recognized methods. . Performs single or sequential extraction. Automated heating of reagent in an integrated, closed system ,Automated addition of preheated reagents , No sample transfer so as to improve precision , According to AOAC, AACC methods Automatic water filling,Water saving device reduces consumption,Rapid Filtration of six samples simultaneously Sample size : 0.5 – 3 gms, Measuring Range: 0.1 – 100% Capacity per batch : Upto 3 / 6 samples simultaneously Repeatability : ± 1%, Reagent pre heating time : 10 – 15 min Heating time for reagent from pre hated temperature to boiling : 5 minute. Automated heating of reagent in an integrated, closed system ,Automated addition of preheated reagents , No sample transfer so as to improve precision , According to AOAC, AACC methods Automatic water filling,Water saving device reduces consumption,Rapid Filtration of six samples simultaneously Sample size : 0.5 – 3 gms, Measuring Range: 0.1 – 100%, Capacity per batch : Upto 3 / 6 samples simultaneously Repeatability : ± 1% Reagent pre heating time : 10 – 15 min Heating time for reagent from pre hated temperature to boiling : 5 minute.

181.	Fibra Plus Automatic Fibre Extraction System	**<u>Alternative 1:</u>** **TWO PLACE AUTOMATIC FIBRE ESTIMATION SYSTEM MODEL FES 2** Number of Samples : Two, Sample Size : 0.5 to 3 gms, **Application:** System for determination of Crude fibre, NDF, ADF, ADL, Cellulose, Hemicelluloses, Lignin & related parameters in plant materials compound feed, food etc. Fibre Determination in accordance with weende, van Soest and other recognized methods. **Heater Source: Ceramic Infrared Heater.** Extractor : Marked Borosilicate Extraction Vessle (2 Nos.), Individual high temperature resistant adoptor for intact leak proof seal, **Independent sample loading with individual mechanical controls.** Facility of direct Reagent addition. Sintered Silica glass Crucible with P2 Porosity disc (2 Nos.), Pressure Pump: Electrically operated air pump for declogging, Control Valve: Individual control valves for vacuum, reverse air stream & reagent addition, Temperature Controller: Microprocessor based Digital temperature controller, Temperature Accuracy + 1oC., Temperature Range: Ambient to 450º C (Continuously variable), Fibrastat preheating hot plate: **Casted Aluminium Alloy Heater with thermostatic control,** Reagent Addition: Direct to Extractor from top., Fibra Flow System with self priming pump connected to giant water suction filter pump. Heater Power : 1000 W. **Safety Features: Auto over temperature protection, auto Sensor break protection, Auto Error Indication, etc. Electrical Requirement: 220v/50Hz. AC Mains. To quote for Additional 20 Crucibles.** **<u>Alternative 2:</u>** **FOUR PLACE AUTOMATIC FIBRE ESTIMATION SYSTEM MODEL FES 4** Number of Samples : Four, Sample Size : 0.5 to 3 gms, **Application:** System for determination of Crude fibre, NDF, ADF, ADL, Cellulose, Hemicelluloses, Lignin & related parameters in plant materials compound feed, food etc. Fibre Determination in accordance with weende, van Soest and other recognized methods. **Heater Source: Ceramic Infrared Heater.** Extractor : Marked Borosilicate Extraction Vessle (4 Nos.), Individual high temperature resistant adoptor for intact leak proof seal, **Independent sample loading with individual mechanical controls.** Facility of direct Reagent addition. Sintered Silica glass Crucible with P2 Porosity disc (4 Nos.), Pressure Pump: Electrically operated air pump for declogging, Control Valve: Individual control valves for vacuum, reverse air stream & reagent addition, Temperature Controller: Microprocessor based Digital temperature controller, Temperature Accuracy + 1oC., Temperature Range: Ambient to 450º C (Continuously variable), Fibrastat preheating hot plate: **Casted Aluminium Alloy Heater with thermostatic control,** Reagent Addition: Direct to Extractor from top., Fibra Flow System with self priming pump connected to giant water suction filter pump. Heater Power : 2000 W. **Safety Features: Auto over temperature protection, auto Sensor break protection, Auto Error Indication, etc. Electrical Requirement: 220v/50Hz. AC Mains. To quote for Additional 30 Crucibles.** **<u>SIX PLACE AUTOMATIC FIBRE ESTIMATION SYSTEM MODEL FES 6</u>** Number of Samples : Six, Sample Size : 0.5 to 3 gms, **Application:** System for determination of Crude fibre, NDF, ADF, ADL, Cellulose, Hemicelluloses, Lignin & related parameters in plant materials compound feed, food etc. Fibre Determination in accordance with weende, van Soest and other recognized methods. **Heater Source: Ceramic Infrared Heater.** Extractor : Marked Borosilicate Extraction Vessle (6 Nos.), Individual high temperature resistant adoptor for intact leak proof seal, **Independent sample loading with individual mechanical controls.** Facility of direct Reagent addition. Sintered Silica glass Crucible with P2 Porosity disc (6 Nos.), Pressure Pump: Electrically operated air pump for

		declogging, Control Valve: Individual control valves for vacuum, reverse air stream & reagent addition, Temperature Controller: Microprocessor based Digital temperature controller, Temperature Accuracy + 1oC., Temperature Range: Ambient to 450º C (Continuously variable), Fibrastat preheating hot plate: **Casted Aluminium Alloy Heater with thermostatic control,** Reagent Addition: Direct to Extractor from top., Fibra Flow System with self priming pump connected to giant water suction filter pump. Heater Power : 2500 W. **Safety Features: Auto over temperature protection, auto Sensor break protection, Auto Error Indication, etc. Electrical Requirement: 220v/50Hz. AC Mains. To quote for Additional 50 Crucibles.**
182.	Fixed Angle Micro-centrifuge	**A) Eppendorf Centrifuge 5416 R, 230 V/50-60 Hz, Qty.** **Part No.5426 000.018 without Rotor** 1 **Technical Specifications :** Power consumption: 300 Watts, Maximum Rotational Speed: 13,200 rpm , Acceleration time to max. speed : Approx. $\leq$ 13s Braking time to max. speed : Approx. $\leq$ 11s Dimensions (HxWxD) : 29 x 45 x 25 cm Weight. Without rotor : 21.2 kg **Features :**Microprocessor controlled centrifuge for research and routine. Maintenance free drive small and quiet rpm/rcf setting as required. Separate short-spin key Dials and a digital display. Temperature setting range from 0^0C to 40^0C. **Optional Accessories** **Adapter for F 45-24-11** Part No. 5425 715.005 6 Adapter for 0.2 ml PCR tubes 1 Part No. 5425 717.008 6 Adapter for 0.4 ml tubes 1 Part No. 5425 716.001 6 Adapter 0.5 ml tubes 1 **B) Eppendorf, Germany make:** **Item Code No. CFEBO NOO** : Centrifuge Mini-spin Plus inclusive of Blackline Rotor, Speed:145001/min, Centrifugal force 14000 x G
183.	Flame Photometer	Code No. MSAO4 0104, chemito flame photometer, FP 114, simultaneous analysis, four elements (Na, K, Li,Ca) Typical suction rate 4 ml/min. **OR** F P114-four element display, compressor for unit /Simultaneous analysis of NA, K, Li and Ca typical suction rate 4 ml per minute. Make:CHEMITO Model:MSA0A0104, FP114 Ultra modern, flame photometer for four elements Na, Ca, K, Li **OR** Size 420. - 360 300 mm , Power 90 – 125 volt, AMIL Make / Elico make / Chemito Technologies

		OR **A)** **Qty.** **1) Code No: MSA0A0104** **1 set** Chemito® Flame Photometer FP 114 is an ultra- modern flame photometer develed to enhance productivity of analysis with simultaneous four element data acquisition and display. **Specifications :** **Simultaneous Analysis : Four elements (Na, K, Li, Ca)** Typical suction rate : 4 ml/min Air Supply : Oil and humidity free air (a) 1 kg /cm^2 Fuel supply : LPG, Methods : 125 methods can be stored, Keyboard : 22 Membrane keys for parameter selection., Display : Large, backlit, graphic LCD (240x 128 pixels), PC interface : RS 232 port Power : AC Mains 95-270V AC/50-60 Hz Weight : 10 kg (approx) Approx size (in mm): 370x320x350 (LxDxH) **2) NC : Compressor for instrument** **1 No.** **B)** "ELICO" Digital Flame Photometer with Na & K filters and compressor **Model CL-26 D** **OR** "ELICO" Digital Flame Photometer with Na & K filters and compressor **Model CL-22 D**

184.	Flow Cytometer	**(BD/Partec/Beckman/ Guava Technologies, USA make)** • Benchtop flow cytometer system capable of performing various molecular & plant biology work (DNA/RNA content estimation; ploidy; wide cross hybrid detection; Chromosome sorting-karyotyping/painting/mapping; plant pigment analysis; membrane fluidity/potential/permeability; Intracellular ionized calcium/ Mg; oxidative burst; Cell cycle/viability/division; protein expression analyses). • Bench top Flowcytometer with fixed aligned. 488nm Laser (eg. Argon-Ion); Red Diode Laser (635nm) and 360-380 nm UV laser. Optical system must be capable of performing DNA & chromosome related functions with correlated dyes like Hoechst etc., Should have capability for at least 6 multiple parameter (i.e. forward scatter; side scatter; At least 4 colors) measurement of physical and/or chemical characters of a single cell. • The system should have inbuilt cell sorter and cell concentrator module allowing various sort modes and at high-speed (>20,000events/second). Cell sorter with high speed will be preferred Fluid sorting Option • All the necessary software's and required for complete application of the system should be provided. Predefined programmes for common molecular biology related applications. • Computer with minimum 80 GB HDD, 512 MB RAM, Built in DVD-RW/CD-RW, Flat display monitor, and high resolution color DeskJet printer should be provided., Voltage requirements for all of the above: 220/240 V, 50-60 Hz. • The company supplying the instrument should have proven capability demonstrated in the past in after sales service and complete support as for as the application systems of the machine. • The company should impart specialized and dedicated training for the use of the machine. • Optional: The system should be upgradable to acquire samples from 96 well plates directly. The system should have option of automatic cell collection for slide and plate sorting. **OR** **Guava Technologies, USA** **1.** The System should **be, Benchtop 96well Flow cytometer with latest Technology and Must be Open system to accomodate 3 party reagents.** **2.** The Detection System should have a **Solid State Blue Laser** for high sensitivity. The Emission wavelength used in the system should be 488 +/- 10 nm. ,The Fluidics Design of the system should be based on **MicroCapillary Flow cell without Requirement of sheath fluid, to minimize Reagent Consumption/cost. and Micro-Syringe pump**. It should be possible to clean the fluidics on a routine basis by the user, with either De-ionized water and the cleaning fluid supplied by the Manufacturer or its equivalent., The System should have capacity of **Performing upto 6 Parameters Measurement with 4 Fluorescence Detectors and two light scatters. ,**Emission : Green (525 nm), Yellow/orange (580-583 nm), Red (675-680 nm) and InfraRed 785 nm, Forward scatter and side scatter., The System should **include a PC as an integral Component of the System**. The System should be easy to use, Flexible and **inbuild Tray for 96well Microwell plate as well as Single Tube sampling for walk away Automation**., Applicatoin software should have **integrated Worklist Editor for customering autosampling routine as well as easy access to acquisition as well as printing and saving the worklists. Software should also include Assay Suite for all Turnkey assays available with the system as well as user defined analysis.** The system should **able to work on Low sample size (less than 20ul or 5000 cells) volume with Minimal Wastage**.
185.	Fluidized Bed Dryer	Lab. Armfield model for granular and powdery materials. Temp. Range : 20 to 200^{o}C (± 1^{o}C), Capacity : 5 kg, Power consumption : 3 kw, Timer range : 0 to 10 mi

186.	Food Texture Analyser	**Make Food Technology Corporation USA** **Texture Analyser 50 kg** capacity, Should have facility for changeable load cells to achieve load measurements of 0.05gms to 250Kg. Load measurement accuracy+/- 0.2% FSD of rated capacity +/- 1 LSD. Load control UP to 1 part in 32,000,Displacement resolution 5um (0.005 mm). Test Speed 1 to 500 or 2 to 1000 mm per minute. Test speed accuracy Better than 0.1%. Data Acquisition Speed 16000 Hz(load/displacement) filtered to 2000 Hz. Easy programmability and Texture profile analysis capability and a library of standard programs.
187.	Fourier Transform Near Infrared Spectrometer	**Bruker Optics GmbH Germany make -MPA** (Seed,Feed,Dairy,Forage ,Soil,Oil Analysis) • Resolution: 2 cm-1 • Wavenumber Reproducibility Better than 0.04 cm-1 • Wavenumber Accuracy Better than 0.1 cm-1 • Photometric Accuracy 0.1% T,Spectral Range 12,800 - 3,600 cm-1 • Measuring Speed Up to 5 scans/sec at 8 cm-1 resolution • Interferometer RockSolidTM, permanently aligned, high stability • IR Source High energy air cooled NIR source • Laser Class Class 1 • Beamsplitter Quartz substrate with proprietary coating • Scanner Mechanical, frictionless bearing (no compressed air required), • 4 selectable mirror velocities, A/D Converter 24-bit • Validation Internal Validation Unit (IVU) • Spectrometer Size 40.0(W) x 58.9(D) x 26.2(H) cm (base configuration) • The FT-NIR spectrometer must incorporate a high throughput 60 degree interferometer and gold coated cube corner optics for maximum light throughput. • Integrating sphere with rotating sample cup for reflection measurements of inhomogeneous samples or samples with large particle size. • 54.9(W) x 58.9(D) x 39.1(H) cm (complete configuration) • Weight 30 - 40 kg (depending on configuration) • Spectrometer Power 100 - 240 VAC, 50 - 60 Hz, max. 180 W • Computer Interface Ethernet connection * Software package for QA/QC,software package for identification of raw materials quantification of ingredients, **Technical Features :** The system must incorporate automated internal instrument validation unit and it should be to incorporate 5 different reference standards and be fully software controlled with standards to test for instrument wavelength (X-axis) and photometric (Y-axis) accuracy and precision.

188.	Freeze Dryer	For food materials. Capacity : 5 kg (max.)/3 lit. bulk, Water removal capacity : 100 ml/hr, Raw material input cap. Per 8 hr. cycle : 1 kg, Max. heating temp. : +80^{o}C, Vacuum in chamber : 0.2 mbar max., No. of shelves : 02, Natural defrosting of condensate after every batch, Manual operation with digital temp. controller & digital vacuum meter, Dimensions : 900 mm (length) x 400 mm (width) x 1300 mm (height), Digital temp. scanner, Suitable deep freezer for pre freezing, Suitable condenser capacity : 7.3 lit., Temperature : –55^{o}C± 5 ^{o}C **OR** **Lyodel Model 2S** 5 lit. cap. Performance kg/24 h-2.5, Temp (0ºC±5ºC) @ 20ºC ambient) shelf temp. control in ºC (±2ºC), shelf size wxd mm 275x350, shelf area : 0.20 (m^2), Distance between shelves (73 mm) , Max. bulk capacity (with 1 cm depth : 1 lit with accessories **OR** **VirTis, USA make, Model: Benchtop 4.0K ZL** Laboratory Freeze Dryer featuring 4.0 liter robust stainless steel internal smooth wall condenser. -105° C temperature. Condenser capacity: 3 liters in 24 hours, condenser is hot gas defrostable.With Sentry 2.0 containing an LCD synoptic screen with at-a-glance data display and LED qualitative display of condenser temp and vacuum level. Weight: 131 lbs. Dimensions: 15.5"W x 19" D x 15.5"H Electrical: 200-240V 50/60Hz, 250ml, 600 mL,1000ml,etc flask; adapter for the flask;package of filter paper,tube of vacuum grease, Weight : 60 lbs. Dimensions: 12.5"W x 19" D x 15.5"H Electrical: 115V/60Hz or 200-240V 50/60Hz. Leybold 2.5E vacuum pump - 65 LPM - 2-stage w/gas ballast, **Vacuum Brake System** 12 - Port Stainless Steel Vertical Manifold Stainless steel adapter plate for customers using high percentages of organic solvents **Oil Mist Eliminator** 500ml, 1000ml,1200 ml wide mouth filter seal flask - Complete Assembly. Includes, O-Ring, 1 Filter Paper , Widemouth Flask Cover, Flask bottom and Filter Disk.
189.	Fresh air purification system with AC and without AC	Micro clean make – Purification system for Tissue Culture lab Main body : MS; CRCA powder coated prefiltered HDPE washable post filtered HEPA, 99.99 % efficiency, drawn to 0.3 µ size particle
190.	Fruit Juice & Pulp Processing Plant	50 LPH Juice / pulp processing complete project alongwith sugar syrup preparation , complete with SSPiping & control panel with utilities. should have done atleast 3 such projects for universities.
191.	Fruit pulper	Mini : 75-80 Ltr./hrs. Motor : ¾ HP, 3 PH Make : Geeta Food Enginering , Mumbai OR MGI brand with 1 HP I ph motor. It can process 500 kg of fruits/8 hour shift.
192.	Function Generator	TESTRONIX-59, Function generator having sine, square, triangular, pulse/ramp and DC output, 0.1 to 100 KHz.

193.	Gas Liquid Chromatography (GLC)	With the required accessories, columns and standards : **Shimadzu Gas Chromatography, Model: GC- 2010A** 1. 221-71023-34 Microprocessor based GC for high speed/ultra-fast analysis operation on 220V/50Hz includes split/split less injector with AFC (Advance flow controller) 0.1 to 0.53 mm capillary column connection, High Power Oven, temperature up to 450^0C Temperature programming : 20 steps 2. Additional Split/Splitless injector with AFC SPL 2010 3. Detector A) ECD detector P/N : 221-48426-38 B) ECD Controller P/N : 221-47733-92 Max.Temperature : 400^0C , Detection limit : 8 fg/sec (Y BHC) C) NPD (FTD) detector , P/N : 221-47732-38, Max. Temperature : 450^0C Sensitivity/Min Det limit : N-0.3 PgN/s, P-0.03 PgP/s 4. Auto injector AOC 20D (includes dual auto injector and auto sampler AOC 20S) P/N : 221-71213-38 5. Vials with septa and caps (100 pcs/pkt) P/N 221-34274-91 6. GC Solution software (32 bite with GLP compliance) P/N : 223-06290-92 7. Septa- (20 pcs/pkt) P/N : 201-35584 8. Graphite Ferrule 0.5 mm (10 PCS/pkt) P/N : 221-32126-05 9. Graphite Ferrule 0.8 mm (10 PCS/pkt) P/N : 221-32126-08 10.Standard sample for ECD (one vial) P/N 221-44247-63 11.Standard sample for NPD/FTD (one vial) P/N : 221-44247-67

194.	Gel Documentation System	Gel Documentation System should be supplied High Resolution Digital Colour Camera with 7.1 Megapixel, 32 MB Memory Card, image sensor 1/1.8 inch Charge Couple Device (CCD), auto zoom lens 35 – 140 mm, Digital zoom approx. 4.0x (upto approx. 16x with optical zoom), real image zoom viewfinder, 2.0" TFT colour LCD monitor, digital lens adapter, Close-up lens, UV/IR filter, Universal Darkroom Hood, Image Acquisition Software, USB Interface cable and ImageAide Band Matching Image Analysis Software for gels, colony plates, spots, blots, PCR, molecular weight, dendogram, band matching etc. UV White Light Transilluminator (312nm), Variable intensity with Hinged UV Blocking Cover, Five 8 watt UV tubes **OR** Expert Vision / DNR Israel - Spectronics USA Gel documentation unit with digital camera, computer, DNA analysis software, hood and transilluminator **Alpha imager HP flurochem.** Imaging system includes 12 bit 1.92 million pixle cooled camera, manual fixed lense pixle size 7.4 million squre, resoulation 1600 x 1200 dynamic range, Adjustable tray kit, manual flurochem Alphaease, FC-32 bit software, with computer Pentium IV, 29 H2, 40GB HDD, 17" LCD flat monitor, keyboard, mouse. **OR** **Make:Ultalum USA, Model: Ultralum** Ultralum digital imaging system with 10Megapixel digital color camera Canon make,live preview,acquisition & archive software ;600nm ethidium bromideIR blocking filters Power:100-240V/50-60HZ with 2.5" TFT Color LCD, Sensor:1/1.8" RGBcolor CCD, Bit depth: 24bits **OR** **Spectronic Inc., USA Make : Model GL4001B** Gel Documentation System should be supplied High Resolution Digital Colour Camera with 10 Megapixel, 32 MB Memory Card, image sensor 1/1.8 inch Charge Couple Device (CCD), auto zoom lens 35 – 140 mm, Digital zoom approx. 4.0x (upto approx. 16x with optical zoom), real image zoom viewfinder, 2.0" TFT colour LCD monitor, digital lens adapter, Close-up lens, UV/IR filter, Universal Darkroom Hood, Image Acquisition Software, USB Interface cable and ImageAide Band Matching Image Analysis Software for gels, colony plates, spots, blots, PCR, molecular weight, dendogram, band matching etc. UV White Light Transilluminator (312 nm), Variable intensity with Hinged UV Blocking Cover, Five 8 watt UV tubes, **OR** **Kodak, USA** 1. 1.4 million Pixel cooled CCD camera with megapixel resolution. True 12 bit imaging with 6X zoom lens as well as high resolution images Via its 1.4 million pixel sensor for high speed sensitivity 2. Accessibility for larger work area (Wider range of sample sizes) 3. Imaging area- 33 x 24.5 cms, Cooling temperature range - - 25 Deg C 4. Megapixel resolution –1392 x 1040, Built in UV Transilluninator Soft ware with following features, Three step lane and band analysis for fast calculation of molecular weight and mass on proteins and nucleic acids

	Contd…	**OR** **Alpha Innotech/FC2 system** a) 1.92 mega pixel resolution cooled CCD camera for image acquisition - 1600(H) X 1200(V), 1.92 million pixel resolution cooled CCD camera with 7.4X7.4 micron well capacity pixels, greater than 75 dB signal to noise using KAI-2020M chip with full 16 bit image acquisition delivering 16 bits of data in a 16 bit file format; measurable performance exceeding 4.8 OD using standardized luminescence plate. - 1x1, 2x2,4x4, 8x8 pixel binning CCD architecture capabilities, - b) Fast Optics - Standard zoom lens 28-70mm, - Field of view F2.8 - At 28mm 29x29cm - At 70mm 12x12cm c) Interference filters for fluorescence, colorimetric and chemiluminescence Custom interference filter, suitable for documentation of Ethidium Bromide or SYPRO^{TM} – orange stained DNA/RNA agarose and acrylamide gels, coomassie blue or silver stained protein gels, film, or membranes
195.	Gel Imaging and Spot Picking workstation (with software for 2D analysis)	**Fuji Film,Japan, Model : LAS 4000 / KODAK Model IS 4000 MM Pro** Specifications for Luminescent Image Analyzer for chemi/bioluminescence and wide range of fluorescence detection by various light sources: System should be the top-end model of reliable, high-resolution Image analysis series as well as user friendly. to capture imaged from distances as short as several tens of centimeters. SIGMA wide-view lens is also preferable
196.	GLC (Gas liquid chromatography)	With the required accessories, columns and standards : **Shimadzu Gas Chromatography, Model: GC- 2010A** 1. 221-71023-34 Microprocessor based GC for high speed/ultra-fast analysis operation on 220V/50Hz includes split/split less injector with AFC (Advance flow controller) 0.1 to 0.53 mm capillary column connection, High Power Oven, temperature up to 450^{0}C 1. Temperature programming : 20 steps, 2. Additional Split/Splitless injector with AFC SPL 2010 3. Detector C) ECD detector P/N : 221-48426-38, ECD Controller P/N : 221-47733-92 Max.Temperature : 400^{0}C , Detection limit : 8 fg/sec (Y BHC) C) NPD (FTD) detector , P/N : 221-47732-38, Max. Temperature : 450^{0}C Sensitivity/Min Det limit : N-0.3 PgN/s, P-0.03 PgP/s 4. Auto injector AOC 20D (includes dual auto injector and auto sampler AOC 20S) P/N : 221-71213-38 5. Vials with septa and caps (100 pcs/pkt) P/N 221-34274-91 6. GC Solution software (32 bite with GLP compliance) P/N : 223-06290-92 7. Septa- (20 pcs/pkt) P/N : 201-35584 8. Graphite Ferrule 0.5 mm (10 PCS/pkt) P/N : 221-32126-05 9. Graphite Ferrule 0.8 mm (10 PCS/pkt) P/N : 221-32126-08 10.Standard sample for ECD (one vial) P/N 221-44247-63 11.Standard sample for NPD/FTD (one vial) P/N : 221-44247-67

197.	Glassware Washer with Dryer System	**SMEG , Italy** Glassware washers with drying systems 1)The machine should be controlled by 32 KB microprocessor. 2)The machine should have illuminated display of 2 lines x 20 characters with clear text messages. 3)The machine should have memory for 30 programs. Out of which atleast 10 should be user programmable. 4)Each washing cycle should use alkaline detergents as well as acid neutralizing agent to ensure non-contaminated glassware after washing. 5)Each washing cycle should have been divided in different phases or sub cycles and the machine should display the operation status 6)The machine should have safety features such as wash cycle, interrupted if door is opened, water level control, mechanical interlock. 7)The construction material – inner tank AISI 316L – acid resistant chrome-nickel molybdenum SS and external panels in AISI 304 SS. 8) The machine should be supplied with required alkaline and acid neutralizing cleaning agents **OR** **Make: Hot Pack, USA** **Model: Under counter Glass ware washer model no. H-1125 FSM** UC glassware washer w/ DI rinse, accepts Spindle racks FS & M (Free standing & Mobile) PLC Control with touch screen user interface, 3 factory programmed and 20 user programmable cycles, dual level loading (holds 8 baskets), electrically heated, washing temperatures up to 95C, drying temperatures up to 105C, chamber dimensions 29" W x 27" D x 26" H, exterior dimensions 46" W x 36" D x 77" H, powered tempered glass door lifts vertically, Chamber is 304 stainless steel, cabinet is 304 stainless steel, holds upper and lower spindle racks, (Sold separately), 220/1/60, 60 amps. Spindle rack set Spindle rack set, includes UCW-155, UCW-180, and parts to convert UCW-180 into UCW-181
198.	Ghee Vat	Capacity : 10 kg, All material in S.S. 316

199.	Glassware Washer with Drying System	**Steelco Spa Italy, Model :500C** Programmable laboratory glassware washer & dryer for washing and air drying of different types of glassware. Should be designed to comply with latest international guideline on decontamination. Double wall construction and excellent insulation should be provided to reduce heat loss and power consumption. External cabinet should be made of 304 stainless steel. Inner cabinet, washing arms and tank filters should be of high quality AISI 316L stainless steel. Construction system with total removal of angles. Self cleaning tank with rounded edges. Water filling system in three levels enables residue to be captured and not recirculated to saves the pump life. Three water connections should be available, cold, warm & DI water. There should be two automatic liquid dispenser and with an option for one more dispenser. HEPA filtered forced air drying system with adjustable time and temperature setting to ensure completely dry, inside and outside of all glassware. RS 232 port should be provided with printer connection for monitoring and validating washing process. LED display with five adjustable washing programs. The control system should have automatic diagonistic checking which constantly monitors and displays current cycle status and alarms. Should be supplied with inserts for 30 positions petri disches, upper & lower baskets with 36 cleaning jets each for cleaning bearkers & flasks, upper mixed basket for centrifuge tubes, vials and test tubes of 121 positions and lower vertical pipette basket of 120 positions.
200.	Global Positioning System (GPS)	i) Sportrak map Accuracy to within 3 meters, map features to 2 MB North American Mapping database ii) Mobile mapper **OR** Garmin Handheld GPS etrex Vista Model with software
201.	Gradient PCR	• Silver Heating Block – 6 degree C / sec and cooling 4.5 degree C / sec • Gradient range – up to 24 degree C • Gradient possible at all three stages (denaturation, annealing & elongation) in one program. • Electronic sample protection – Heated lead should fit on sample only after reaching set block temperature. • Electronic hot start – Initial heating ramp up to 12 degree C / sec • Control panel – Windows type display; capable of controlling up to five heating blocks. • PCR License • Upgradeability options - to QPCR, Networking of multiple blocks to one console, Automisation of Heating lid **OR**

202.	Gradient PCR	**OR** **Gradient PCR : Takara Biosciences, Japan** **Model TP 600 Gradient PCR** • Dimensions : 260 (W) x 345(H) mm (with a panel closed) • Weight : 11.5 kg (system Weight) • Power requirement / Power consumption : 100-240 V, 50/60 Hz of AC/490W • Heating Cooling System : Peltier Element • Ramp Rate of Heating : Maximum 3.0 deg. C/Sec • Ramp Rate of Cooling : Maximum 2.0 deg. C/Sec • Block Temperature Control Range : 4-99.9 deg. C • Bolock Temperature Accuracy : $\pm$ 0.5 deg. C • Bolock Temperature Uniformity : $\pm$ 0.5 deg. C • Exaggerated Shot : Less than 0.5 Deg. C • Heated Lid : 110 Deg. C • Temperature Extension : Maximum of $\pm$ 9.9 deg.C • Time Extension : maximum of $\pm$ 9.59 minutes • Sample capacity : 96 x 0.2ml Tube or 96 well PCR Plate • Display : Blue / White dot Matrix LCD (240 X 60 Dots) • Number of Maximum Programmed Stored : 100 Programs • Number of Maximum user name registeration : 10 users • Gradient Function : Range which can be set up : 40-75 deg. C (temperature variance : 6-20 deg. C)
203.	Grain Analyzer	NIR Grain Analyser

204.	Green Seeker – Hand Held NDVI Sensor	The Green Seeker , an active light source , real time plant reflectance Sensor. This System should be optical-electronic system emits light at two wave length , should measure the reflectance and outputs Normalized Differential Vegetative Index (NDVI) , value related to the amount of vigor of plant matter in its field of view.The Sensor should be perform identically in Sunlight and darkness.System should be Pole mounting for handheld operation and should be supplied with pocket PC. The Green Seeker should be able to perform Biomass Measurement ,Plant Canopy variation , Nutrient Response , Yield Potential , Pest and Disease impact , real time fertilizing for wheat , Corn , Canola etc. Mapping fr field Crops , Row Crops , Orchids and Vineyards etc. It can be used for Remote Sensing and Agronomic Research. Specifications : NDVI Range : 0.00 to 0.99 Emission Wavelength : red 656nm ~25nm FWHM Outputs Data format : RS232C, ASCII !st Vegetative Index : NDVI 2nd Vegetative Index : IRVI , RVI , NDVI , SA – NDVI and WDR-NDM etc.
205.	Grinding Mill (with motor)	Willey type, multiplex brand, electrically operated, fitted with 0.25 HP single phase best Indian make electric motor (provided with stainless steel sleeves 0.5 mm, 1 mm and 2 mm bores. Willey make, Model : 40 mm x 25 mm ¼ HP (SS.chamber)/ "SECOR" Laboratory Willey Mll: Intermediate Model 'Arthur Type' Model-a) 40mm x 20mm 1/4 HP (S.S.Chamber)S Model-b) 65mm x 25mm 1/4 HP (S.S.Chamber) Model-c) 100mm x 50mm 1/4 HP (S.S.Chember)

206.	Growth Chamber with Controlled Humidity, Temperature and Light Intensity	**Percival Scientific, Inc. USA , Model : LT-105** Temp Range: 0-44^{0}C±0.5^{0}C, Interior Space Volume : 76.4 ft^3 (2.2m^3) Total Shelving Floor Area : 16.1 ft^2 (1.5m^2), Maximum Growing Height: 57 in. (142.2cm) Exterior Dimensions in inches (cm): Height : 77.2(106.1) ,Width : 117(297.2), Depth : 37.1(94.2) Light intensity: 980 µmol/m^2/s, Number of Tiers : 1 Advanced Intellus System (C9), Communication Software(C9+), Advanced Intellus with Touchscreen and Internet capabilities (C10), CO_2 enrichment package, self contained air-cooled condensing unit,remote air cooled condensing unit, dry alarm contacts (S-2), closed loop dimmable lighting (Q -22), open loop dimmable lighting (Q -23), extended temperature ranges. **OR** **Sheel Biotech make**, **Model - 03605** Interior Space Volume : 76.4 ft^3 (2.2m^3) **Pre Fabricated Cabinet** - ➢ Double walled cabinet structure with Dirt repellent Powder Coated GI 0.5mm thick, outer and Stainless Steel (304 grade) non magnetic inner surface ➢ 60 mm polyurethane (Puff) insulation (Puff Density : 42±2 Kg/cum.). ➢ Prefabricated panel system will be duly sealed to prevent leakage. ➢ A Flushed door (3' x 2') duly insulated will be provided. The door fitted with heavy duty **Gravity H**inges **(Imported)**. with sweep gasket to prevent leakage will be provided. ➢ The door fitted with heavy duty hinges & lock system ➢ See through hatch window of 25cm x 25cm size **(Toughened Vacuum Glass Panel fitted with aluminum/ SS sections)** on two sides will also be provided**.** ➢ **Additional Sub Door of Glass 5mm thick with lock & key arrangement** will also be provided ➢ Castor arrangement will be provided. Cooling/Heating System **Range: -5°C to 50°C-70°C ± 0.5 °C without humidity& illumination** **Range: 25 °C to 60°C ± 1.5°C without humidity& illumination.** **Cooling down time to 10°C – 35 minutes minimum** **AC System (Sheel Make):-** **"For efficient working of the Growth Room separate cooling chamber will be provided"** **Humidity Range : upto 95% ± 2%** Through **AHU Unit, i**t creates the simulated natural humidity in Growth Chamber because humid air comes out in cold form. Illumination System (Door/ above or below the each selves) : Photo synthetically Active Radiation Lamp (P Ac Ra) : MCS (Microprocessor control System) for Growth Chamber"Programmable Day & Nights separate setting for week program Microclimatic Temperature Controller {Code No. S 0256} **Microclimatic Humidity Controller{ Code No. S-0274} Photoperiodic Timer Programmable {Code No. S-0264}** **Shelves -** 4-6 Heavy duty removable Stainless Steel shelves with rounded inner chamber corner for easy cleaning will be provided inside the Chamber.

207.	Hand Held Sunphotometer For AOT Measurements	SOLAR LIGHT CO., U.S.A. MICROTOP II hand-held instrument for AOT measurement with 5 filters: 440,500,675, 936, 120nm. Band Width: 5nm ± 1nm Angle of view :2.5 deg. Slope Angle: 1.0 deg. Accuracy: 2% or better for ozone and aerosol optical depth Non-Linearity: Max 0.002% of full scale Computer Interface: RS-232 Data Storage:More than 500 records Power Source :Internally fitted batteries, Display : Digital display, Automatic Computation of aerosol Optical depth, ozone, Water Vapour etc. supplied with GPS,Software,Tripod Adapter
208.	Hand Operator Carbonated Machine	"MGI" Brand carbonated of size 12" & 5 ft height with complete CI base & suitable pump, Make : M.G.Industries, Coimbature
209.	Hand Operated Stitching Machine	**HAND OPERATED STITCHING MACHINE : Indosaw Make : Model 0580** Suitable for stitching on all types of paper, cotton, jute and poly bags. **Type of stitch : Single thread chain stitch** **Sewing Speed : Maximum 1600-1800 stitches per minute** **Stitch length : 3.5 stitch per inch (fixed)** Cutter Type : Mechanical Dimensions : 30 cm W x 33 cm D x 30 cm H Weight : 6 Kg Power Requirement : 0.1 HP, 8000 rpm 220V, 1.3 amps

210.	Heavy Duty Two Tier Rotary Incubator Shaker	**Model ROTEK LSV DD: Double Decker Laboratory Shaker Variable RPM** **Designed specially for continuous non stop biological operation for uniform noiseless orbital motion,** * Shaking Frequency : Single Platform 50 - 375 rpm, *** with Double Platform 50 - 275 rpm,** * Shaking Accuracy : +/- 2% of set value, *Diameter of Orbital motion: 25 mm, * RPM Selection : Using Rotary Potentiometer, * RPM Indication: Digital, * Drive : Non belt eccentric pin guided drive enabling smooth and noiseless uniform orbital motion * Motor : Heavy duty permanent magnet DC geared Motor for continuous operation with an inbuilt tachogenerator attached to the rotor for accurate revolution, * Standard Tray Size : 420 X 420 mm (Double Decker), * Tray : Universal Tray (Double Decker) with interchangeable SS Clamps, * Timer Setting : Programmable Feather touch keys, * Timer Range: 0-99.59hrs (Settable in hrs,mts, sec), Timer Display : Digital, * Display Parameters : Set time, Actual time, *Inbuilt Auto start Mechanism: At times of power outage, The system automatically restarts functioning from the previous set RPM. Superior electronic speed control: Pulse width modulation technique enables considerable energy saving making the system draw required power at various speed * External double powder coating - Anti corrosive paint with bottom wheels and lock mechanism for easy movement, * RPM Deviation: The shaker gives an alert indication & alarm signal with indication if there is a error in rise or fall of rpm by + 5 rpm than the actual set rpm, * Incorporates anti vibration mount to prevent movement at higher rpm, * Electrical Requirement:230V,50Hz, Single Phase, Includes Clamp Capacity : SC 250 : SS Clamps for 250ml Erlenmeyer flask (42 Nos.) - 21 in each tray.
211.	High Precision Water Bath with Stirrer	For sterilization YORCO Water Bath Serological (High Precision With Stirrer) 405 (W) x 300 (H) x 150 mm (D) YORCO make Model YSI 415 "YORCO" High Precision Water Bath with Stirrer Temperature controlled by Digital Temp. Controller cum indicator +/-10^{o}C **Inner Chamber: W x H x D** 405 x 300 x 150mm
212.	High Speed Micro Centrifuge	• High speed micro centrifuge – RPM 17500 and G fources 30 130 • Choice of eight different rotors like – MTP plates, Falcon for 15 and 50 ml, criovile rotor, PCR strip • Backlit graphical LCD • Menu guided operation in four different languages • 50 programme storage
213.	Heat Sealing Machine	For heat sealing of all types polythenes, laminates etc.
214.	High Speed Centrifuge	**4 lit cap** Carl Pad berg GmbH Germany CEPA- High speed continuous laboratory centrifuges **Speed up to 50,000 rpm.** Gravitational force to 50,000 G, Continuous Operation Effective solid collection volume of cylinder ranges from 0.2 lit to 10 litres.

215.	High Speed Refrigerated Centrifuge	**Kubota make** **Specifications:** **Kubota Model 7780 (Japan make) / Qty.1** Maximum Speed : 22000 rpm Maximum RCF : 52,490 x g Maximum Capacity : 4000 ml Speed setting range : 300 rpm to 22000 rpm in 10rpm increments Temperature control range : From -20^0C to + 40^0C in 1^0C increments **Required Optional Accessories:** **Angle rotor Qty.1** AG 506 R-6 x 50 ml, Maximum Speed : 22,000, Maximum RCF : 51,950 x g **OR** Max. RPM : 24,000 RPM Max. RCF : 60,325 xg Max. Capacity : 4 Liter, 1000mlx4Tubes Display : Dual Display, LCD & LED Operating Mode : RPM, RCF & $\int\omega^{2dt}$ Step Mode : 5 step programmable Program memory : 32 memory Timer : 99Hr. 59min. & Hold for long run Temperature Range : -20°C to 40°C Safety System : Over speed detection, imbalance control Temperature Limit control Dimension : 750 x 975 x 900/1250 (H) mm Power : 220V, 50Hz

	Contd…	**Sigma** **Technical Specification** **SUPER HIGH SPEED REFRIGERATED CENTRIFUGE FREELY PROGRAMABLE WITH GRAPHIC DISPLAY SCREEN** For High Speed Applications up to 64,000 xg with various Angle Rotors for volumes from 0.2 ml to 85 ml, up to 3700 xg with Swing Out Rotor for various volumes from 100 ml to 15 ml &microtiter plate rotor upto 3000 rpm <u>Detailed Specifications</u> : Max. Speed : 30,000 rpm , 64,400 x g Max. rcf : with rotors 12 x 1.5 ml , 64,400 x g 6 x 30 ml, 60,630 x g 6 x 50 ml , 41,400 x g 4 x 85 ml , 40,700 x g Max. Capacity : 510 ml , (6 x 85 ml) Angle Rotor Temperature : -20 to +40°C Single knob operation, no keypads Maintenance Free, noiseless, brush-less motor drive Large size LC Display Screen with facility for zooming of rpm / rcf Self diagnostic error messages & audible alarm 20 curves for accel. and deccl. & 10 freely programmable Accel. and Deccl. With Graphic display 50 users program memory backup Short run function with display of run time in seconds Magnetic rotor identification prevents rotors from over speeding Run time preselection upto 9 hrs 59 min or continuous run Motorised lid locks with facility of automatic lid opening after the run **Rotors – please select rotor as per requirement** Angle Rotor 48 x 1.5/2.2 ml (Eppendorf) max. 15,300 min 21,980 x g Angle Rotor 24 x 1.5/2.2 ml (Eppendorf) max. 26,000 min 61,990 x g Angle Rotor 12 x 1.5/2.2 ml (Eppendorf) max. 30,000 min 64,400 x g Angle Rotor 6 x 30 ml incl Hermatic lid Max 26,000 rpm ; max.rcf 60,630 x g Angle rotor for 6 x 50 ml Max. 21,000 rpm; max. rcf. 41,400 x g. Angle rotor for 4 x 85 ml Max. 20,000 rpm; max. rcf. 40,700 x g. Angle rotor for 6 x 50 ml Falcon tube Max. 14,000 rpm; max. rcf. 20,300 x g with Adapter for 15 ml Falcontube Angle rotor for 10 x 15 ml Falcon tube Max.14,000 rpm; max. rcf. 20,300 x g.

<table>
<tr><td>216.</td><td>High Speed Table Top Centrifuge Machine</td><td>Hermle make
Max. speed 30,000 rpm, vol. 6x250 ml, Speed range 200-30,000 rpm
Temp range -20º to 40ºC, Dimentions 71.5x42x51cm
OR
Thermo Sourvall , Germany. Towa Optics Pvt Ltd.
Drive Brushless induction, Control Microprocessor via EASYcontrol II
Speed range rpm 300 – 15,000 adjustable in 10 rpm increments
Max. RCF x g 21,890, Max. capacity ml 4 x 100, Decel./accel. profiles 9/2
Programmability The most recent data remains in memory
Functions RCF pre-selection, quick run, automatic rotor recognition, electronic imbalance detectio
Run time hr/min 0 – 9 hrs 59 mins, continuous operation</td></tr>
<tr><td>217.</td><td>Hobart Food Mixture</td><td>Hobart Model N-50 – Dimensions – W 264 x D 318 x H 432 m.m. Energy – Electricity - 230 V/ 50 HZ / 1 Ph.
OR
Model N50 Mixer
Specification:
1/6 H.P. Hobart Designed Motor, Gear Driven Transmission, Three Fixed Speeds, Hobart Agitators
100-120/60/1-U L Listed for residential and commercial use. Also available in 100/50/1, 230/50/1, 220/60/1 and 230/60/1- not submitted for U L Listing.Weight – $44^{1/2}$lbs. Net; 55 lbs. Domestic shipping</td></tr>
<tr><td>218.</td><td>Homogeniser</td><td>
<table>
<tr><td></td><td><u>Alt I</u>
<u>Hand Held Homogeniser</u></td><td><u>Alt II</u>
<u>Table Mounted</u></td></tr>
<tr><td>For Volumns</td><td>0.1 to 50 ml
Or 1 ml to 250 ml</td><td>100 ml to 5000 ml</td></tr>
<tr><td>Variable RPM</td><td>8,000 rpm to 30,000 rpm</td><td>10,000 rpm to 30,000 rpm with circumtent
rotor speed 36m/sec</td></tr>
<tr><td>Shatt Size</td><td>6mm dia</td><td>20 mm dia</td></tr>
<tr><td>Drive</td><td>Universal Motor
230 V 50Hz AC Single phase 50 Hz</td><td>Universal Motor
230 V 50Hz AC Single phase 50 Hz</td></tr>
<tr><td>Power input</td><td>130 watts</td><td>500 watts</td></tr>
<tr><td>Shaft MOC</td><td>SS 316 L with teflon bushing</td><td>SS 316 L with teflon bushing</td></tr>
<tr><td>Weight</td><td>Approx ½ kg</td><td>1.3 kg</td></tr>
</table>
Or equivalent</td></tr>
</table>

219.	Horizontal Mixer Cum-Blender	Batch Capacity : 100 cft (100 kg). All contact parts of ss. 304 with main drum thick s.s. 304 sheet. Two pair of blade, main shaft, M.S. angle iron frame. Gear and V pulley drive with 30 lit tank. Feeding hopper, One set of electricals : 5 HP x LO motor, starter, 15 A main switch and standard accessories.
220.	Horizontal Rectangular Pressure steam single door sterilizer	NATSTEEL - Size 600 x 900 x 1500 mm (2' x 3' x 5') operating pressure : 1.2 kg/cm_2 Operating temperature : 1210C Hydrostatic pressure – Jacketr : 2.6 kg/ cm2, chamber – 1.9 kg/ cm_2 others: Operating at 1440 v, 50 cycles, phase, electric local 36 k.w. single door, double jacket, safety door automatic pressure regulator, emergency stop-button intelligent transducer for healer protection double safety valves.
221.	Hot Air Oven	**Model-** Acm-22066-I **Make – Acmas Technology** **Inner Chamber (W x D x H) -** 455x455x605 mm, **Volume (Liters) -**125 Ltrs **Temperature Control –** Temperature Sensitivity ± ° upto 1^o C Spatial Deviation In Temperature ± °C 0.5 Readability 0.1°C Temperature range 5°C above ambient to 250°C Temperature Sensor PT-100 Temperature Controller - Hydraulic Thermostat/PID controller, Display - LED/LCD , Adjustable alarm limits – **Safety thermostats with** Temperature variation Adjustments- 3, Temperature Sensors -PT-100 , Automatic temperature setting and Adjustable limits **OR** **A)** Capacity : 250 lit, Uotp 2500C with 3 number of shelves H x W x D 910 x 605 x 455

		OR **B) 'Steelmet make'** **Works Space : (Interior dimensions) =**H 1200 x D 600 x W 600 mm **Temp. Range : 10^{0}C above ambient to 250^{0}C** **Temp. controller :Microprocessor based PID** controller with PT-100 Sensor with digital display having soft touch key pad for settings. **Construction :** Interior : 18 swg S.S. 304 sheet Exterior: 18 swg CRCA (MS) sheet, Powder Coated **YORCO** : Model **YSI – 431** **OR** **C) YORCO make ,** **Model : Cat No. YSI – 431** **Three sides heating elements bearing ISI Mark IS : 3119** **Temperature Range: 50^{0}C to 250^{0}C +/- 1^{0}C** **Inner Chamber made of S.S. 304 grade** **W x H x D** **605 x 910 x 455 mm** **OR** Make: LAB HOSP, Hot air oven with digital temperature controller Size: 24"x 24"x36" **OR** **Hot Air Oven : Indosaw Make : Model 6745** * Inner Chamber Size: 60x60x60cm *** Temperature Range: PID Control, Ambient to 250°C ± 1°C.** *** Electronics: Micro controller based digital display of temperature.** *** Alarm: Audiovisual alarm for temperature deviation** *** Display: 2x16 character alphanumeric LCD display with backlit.** *** PT 100 Temp. Sensor** *** Reduced overshoots across set point** * Energy efficient control of temperature * Fast response/correction rate to the changes in the temperature across set point

222.	Hot Plate	**A) DIO-HP 20 x 20** **Cat No. DI-HP 20x20** Temp. upto 250^0C Size : W 200 x D 200 mm Hot Plate with Temperature Upto 250^0C **OR** **B) Thermo-stat** **Models Hot Plate (Round) CS-45** 1. Dia 20 cms 2. Dia. 22.5 cms 3. Dia. 30 cms **Models Hot Plate (Rectangular) CS-46** 1. 25 x 45 cms 2. 30 x 45 cms 3. 45 x 60 cms **OR** Capacity : 250 lit. With Temperature upto 250^o C with 3 number of shelves H x W x D : 910 x 605 x 455 Raut Scientific,, Pune make – Thermostat , Model : CS-46, 36 x 45 cm. Rectangular Shape
223.	HPLC (High precision liquid chromatography)	Dionex model, Germany make. Binary gradient system, consisting of two pumps, UV-visdetector (SPD-10A), spetro flurometic detector (RF-551) & Data processor, chromato pack (C-R-6A) with software. / Chemito Technologies
224.	HPLC	**Dionix, Germany make** **FLUORESCENCE DETECTOR** **OR** **Make: Shimadzu, Japan** **Model: Prominence** 1. Solvent Delivery System for Micro, Semi-Micro, Analytical, Semi-Prep flow rates
225.	HPLC (Preparative)	**Make: Shimadzu, Japan** **Model: Prominence Binary gradient LC 8A**

	Contd….	**OR** **Gilson Inc. USA** ▪ Milligram – level sample mass – throughput per injection: 150mg with a 20mm bore column ▪ Easy linear transposition from analytical to preparative HPLC methods on 4 to 20mm ID columns packed with high – efficiency stationary phases ▪ Dual – piston pumps with a variable volume dynamic mixer for optimized gradient performance ▪ Solvent selection on each pump: additional four – solvent valve (upto 12 solvents) ▪ Software benefits: safety files (pressure limits, emergency signal and power failure), anomaly processing procedures with related outcomes, GLP functions: solvent consumption, diagnostic helps, maintenance logs, leak test, piston seal installation, mixing test and audit trial **Liquid Handler** ❖ **XYZ with stationary rack design.** ▪ Direct Injection into HPLC., **Largest integrated preparative sample injection capacity**. ▪ Powerful Vertical Arm pierces VACUTAINER tubes and other thick septa. ▪ **Versatile Liquid Handler** accommodates sample vessel such as microplates, microcentrifuge vials, test tubes, scintillation vials and bottles. ▪ Large Capacity: Holds upto 6 code 200 series racks (upto 576 13mm tube on bed). ▪ **Two unique and separate injection & Fraction Collection pathways**. ▪ Fraction Collector – 3 port PTFE 3-way valve. ▪ **Custom software and racks designed** to meet the demands of your applications. ▪ Arm speed: >60cm/sec in x dimension,., Rack scanning for pre-run verification (optional). ▪ Solvent delivery from 2µl to >100ml., Flow Rate upto 25ml/min ▪ **Automated off-bed direct access to multiple solvents**., **Flexible direct-inject and portless injection modules** **Detector** ▪ 100-240V, 50/60Hz, Programmable, variable wavelength detector with single, dual and scan wavelength detection options., 190-700nm ▪ Display and keypad control allows for detector control to be programmed from the front panel or Trilution LC Software. **Cell/accessory kit for preparative applications** ▪ 0.05mm path length, 0.16µl volume quartz. **License Software for Lifetime** ▪ Graphical Icon based software., Graphical Virtual Lab with actual Instrument images for configuration creation. ▪ Graphical user interface. ▪ **Fraction simulator optimizes Fraction collection based on a previously collected chromatogram.** ▪ **Software is capable of injection, fraction collection, reinjection of collected fraction and liquid handling tasks etc., Fraction Simulator optimizes fraction collection with enhanced gradient control.** ▪ **Collect fractions to multiple beds, allowing you to expand your collection capacity to meet your application needs., Enhanced slope collection capabilities for precise control of your fraction of interest.**

226.	Hunter Lab Color Spectophotometer Color flex	A bench top color measuring system (HUNTERLAB COLORFLEX Make) for the measurement of color of food & dairy products in various forms (solid, liquid, powders, paste, gel, whole fruit etc.) with the following Measurement Principal : Dual beam spectrophotometer Measuring Geometry : 45/0, Wavelength Range : 400 – 700 nm Pitch : 10 nm, Port diameter : 31.8 mm Wavelength Resolution : < 3 nm Photometric Range : 0 – 150 % Light Source : Pulsed Xenon Lamp, Lamp Life : > 500,000 flashes, Measurement Time : < 1 sec Standard accessories : Calibrated instrument Tiles, Certificate of traceability, Diagnostic tile, black glass Optional Accessories : Glass sample cup, Sample cup set, EasyMatch QC Software,
227.	Hybridization Chamber	• Horizontal desktop shaking platform with two independent incubation chambers each capable of working as an independent unit (with 2 different temperatures). • Hybridization incubation chambers should maintain temperature (range from within 10˚C of ambient to at least 80˚C) with platinum sensor and control accuracy $\pm$ 0.1˚C. • Temperature display system with input board for adjusting input parameters during hybridization. • Chamber capable of handling at least 4 hybridization bottles of variable size ranges • System should ensure continuous flow of minimum volume of hybridization buffer across the complete surface of the hybridization membrane. • Rotation speed should be adjustable as per different requirements. • Complete set of hybridization bottles (Radiation and leakage proof) of variable ranges (set large-25-35cm long; medium15cm long and small 10cm long) with diameter (3-5cm) enough for allowing easy insertion and removal of membranes. • Metal framed, double glass vacuum doors to protect user from radioactive exposure and system to prevent accidental spillage.

	Contd…..	**OR** **MRC Ltd. Hahistadrut 84, Holon 58393 Israel, HR-80** System : Forced Air Circulation, Shaking : Rotation+Orbital Rotation speed : 5-50 PRM, Rotation width : 0-20 variable Shaking speed : 5-120 PM, Shaking width : 25 mm Shaking Plate : W310XD210, Temp. range : Room temp. to 70^0C Temp. constancy : ± 0.1^0C, Temp. uniformity : ± 1^0C (at 37^0C) Heater :300W, Temp.control :PID Temp. heat-up rate : 25°C to 70°C within 20 min Bottle capacity : standard 4 bottles, maximum 8 bottles Standard bottles : A- 35X150 mm, A-35X200 mm, A-35X300 mm, Inside material : SUS-304, Safety devices : Short circuit breaker, over heat protector, sensor abnormality Inside dimensions (mm) : W350XD250XH425, Outside dimensions (mm) : W440XD430XH650 Power supply : 110/220 V (4A), Weight : 44 kg.
228.	Hydraulic Flume with Meandering Arrangement	Tilting Flume with re-circulating system (15m x 1.5m x 1m) with Poly carbonate / Perspex / glass on one side, adjustable gate at inlet section, pipe railing for movement of hook gauge, trolley, bed profile indicator, runoff recorder with re-circulating arrangement having 15 hp Centrifugal pump and prime mover assembly, slope adjusted with hydraulic pump up to 0 – 5% (slope). Perforated bed for seepage study and spray arrangement with 5 V-jet 80100 nozzles to simulate rainfall. - Water stage level recorder of vertical drum Belfast type for recording water level variation up to 60cm (Hindustan Clock Works, Pune). - Rectangular weir for the inflow water measurement with the flume bed made of 6mm thick M.S.Plate of size 1.5x0.5m with weir opening of 1.3 x 0.2 m with measuring scale. - Pigmy current meter (magnetic type) with electronic LCD display type counter with all accessories. - H. Flume of one feet size, Coshcton wheel 60 cm dia. With equal peripheral balance, equilibrium, control slot and barrel having bearing facility for free movement. Wheel plate made of 12 gauge Galvanized steel. - MS Platform for conducting experiment and record observations 12 m length and 0.6 m width and 2m height, made of 2mm thick M.S. sheet (14 gauge) and 25 x 25 x 3 mm support frame. - Railings M. S. pipe 30mm dia. (OD) pipe for hallow. M.S. Vertical (hallow pipes) for railing (25 mm OD) at 30 cm apart. - M.S. Platform and railing painted with Red oxide primer and synthetic enamel paint (Asian make). - Reservoir made of masonry construction having capacity of 100 m^3 (2 masonry tanks of 50 m^3 capacity to act as sump and reservoir) for water circulating and storage. Having the storage depth of 1.5m, manhole and a ladder. Overhead pump priming tank of 5 m^3 capacity..

229.	Hydraulic Milling Machine	Bhagwan Machine Tools (BMT) make Milling machine,Hydraulic Milling Machines for Mass Production **Model : 2 MM ,**Working Surface 1270x300, Cylinder Stroke 500
230.	Ice –Flaker	**Daihan LabTech Co.Ltd Korea LCM-200M** Dimension Exterior : 700x700x975 mm (WxDxH) Dimension Storage : 600x300x500 mm (WxDxH) Ice Production : 200 Kg per day, Storage Capacity : 120 Kg per day Refrigeration System : 1/3 Hp Air Cooled Condensing Unit Refrigerant : CFC Free R402B 360g Material Storage : HDPE with Polyurethane Insulation Material Exterior : HDPE with powder coated zinc plated steel Gross Weight : 114 Kg, Electric Supply : 220V, 50/60 Hz **OR** **LABTECH : Model - LCM-200M , TECHNICAL SPECIFICATION** Dimension Exterior : 700x700x975 mm (WxDxH) , Dimension Storage : 600x300x500 mm (WxDxH) Ice Production : 200 Kg per day, Storage Capacity : 120 Kg per day Refrigeration System : 1/3 Hp Air Cooled Condensing Unit, Refrigerant : CFC Free R402B 360g Material Storage : HDPE with Polyurethane Insulation , Material Exterior : HDPE with powder coated zinc plated steel Gross Weight : 114 Kg, Electric Supply : 220V, 50/60 Hz **OR** **VISION ,KOREA MAKE : Model 625NS** Production/day : 50 Kg/day Ice Type : Snow Type Storage Capacity : 25 Liter Compressor : 3/8 HP, R404a Consumption Power & Power : 350 W, 220V 50/ 60H_Z Material (IN) : ABS Vacuum molding Material (OUT) : Stainless Steel and Steel Plate Door : Front Glass door Safety Device : Ice level Sensor Water level Monitor

		OR **PLE-104** **Pooja Lab, India** **Model No. IF-050** System- In GMP bin is SS- 316 and exterior is SS-304 mat finish. Built-in well-insulated bin keeps the ice for longer period. A metallic/non-metallic door provided at the top of the bin for easy removal of ice. Automatic cut-off takes place when the bin is full and starts again as soon as level comes down. Guaranteed Ice production @ 20^0C air and 15^0C DM water temperature Additional Safety System – The Ice Flaker is supplied with water filter and water failure protection device by considering that the unit will not RUN in case of water supply fails and it starts automatically when the water supply resumes at an extra cost. Pre-Installation Requirement – Stabilized 230V 50HZ AC single-phase 15 amps power supply with MCB and proper earthing within the radius of one meter from the installation. One feet free space around for installation in an air-conditioned or in a cross ventilated, dust free and clean environment. (Room temperature should be below 30 deg. C) Zero level flooring and floor level drainage within the radius of one meter from the installation. Continuous DM or Distilled water supply line ½" BSP with nipple valve connection within the radius of one meter from the installation. Capacity- 50kg./ 24 hours , Bin Capacity- 20kg. approx External Dime inch/mm exclusive of water filter assembly W x D x H - 24.00 x 24.00 x 38.98 (610 x 610 x 990) **OR** **Model No. IF-030** System- In GMP bin is SS- 316 and exterior is SS-304 mat finish. Built-in well-insulated bin keeps the ice for longer period. A metallic/non-metallic door provided at the top of the bin for easy removal of ice. Automatic cut-off takes place when the bin is full and starts again as soon as level comes down. Guaranteed Ice production @ 20^0C air and 15^0C DM water temperature Additional Safety System – The Ice Flaker is supplied with water filter and water failure protection device by considering that the unit will not RUN in case of water supply fails and it starts automatically when the water supply resumes at an extra cost. Pre-Installation Requirement – Stabilized 230V 50HZ AC single-phase 15 amps power supply with MCB and proper earthing within the radius of one meter from the installation. One feet free space around for installation in an air-conditioned or in a cross ventilated, dust free and clean environment. (Room temperature should be below 30 deg. C) Zero level flooring and floor level drainage within the radius of one meter from the installation. Continuous DM or Distilled water supply line ½" BSP with nipple valve connection within the radius of one meter from the installation. Capacity- 30kg./ 24 hours Bin Capacity- 20kg. approx External Dime inch/mm exclusive of water filter assembly W x D x H - 24.00 x 24.00 x 38.98 (610 x 610 x 990)

231.	Ice Flaking Machine	**A) SANYO, Counter-top Flake Ice Maker, 230 volts** Model : SIM : F140 Exterior Dimen : 600 mm W x 600 mm D x 800 mm H. Ice shape : Flake Capacity : 125 kg/per day, Water Consumption : 0.15 m3/per day, Ice storage capacity : 29 kgs Compressor : Hermetic type Refrigerant : R404A Stainless steel top **B) Pooja Lab, India make** ICF FLAKER PLE-104 : Model No. IF-050 System-In GMP bin in SS-316 and exterior is SS-304 mat finish. Capacity : 50 kg/24 hours Bin Capacity m: 20 kg approx External Dime inch/mm exclusive of water filter assembly W x D x H : 24 x 24 x 38.97 inch (610 x 610 x 990 mm)
232.	Illuminated Purity Work Board	**ILLUMINATED PURITY WORK BOARD : Indosaw Make : Model 6714** Designed for testing physical purity of Seed samples with maximum comfort and efficiency. Also used to distinguish discoloured damaged and chalky grains/seeds. **Light below the rectangular 8" x 5" opal glass makes a handy diaphanoscope.** It is fitted with a magnifying glass covering the entire surface of opal glass. **Size : 50 cm x 28 cm x 10 cm (Made of teak for longer life)** **Drawer Capacity : 930 cc (approx.)**
233.	Image analysis package and photomicrography unit.	**Biovis make :** Model-IP-2000 Life Image Analysis System Motic built in Digital Camera Model Software : Biovis IP2000 Lite Image Analysis.
234.	Immuno Flurocscent Microscope	**Olympus make** Microscope with (UIS2)system With Trinocular tube; Pentuple revolving nosepiece; Widefield eyepieces 10 X (F.N.20) **Fluorite phase objectives** 4X,10X,40X,100X(oil); 100W reflected light with Blue & Green Excitation filters. Daylight filter,Green filter for phase contrast,Phase contrast condenser. Digital SLR Camera 7.5 Megapixel Make – Olympus. 1 GB card. PCI Card. **OR** **Leica make**. 50 x to1500x magnification, incident light source (power) with digital camera with 7.5 pixel Infinity Color Correction System; it gives accuracy of color transmission

235.	Incubated oven	Steelmet
236.	Incubator	Classic Make Oven Model: CS-33 Laboratory oven Temp. Control: Thermostat Inner Chamber: Stainless Steel Outer Chamber: Mild Steel Powder Coated INTERNAL DIMENSIONS 60 x 60 x 90 cms Forced Air Circulation for above extra Forced Air Draft with FHP Motor Digital Temperature Controller **OR** **YORCO** Incubator Bacteriological / Deep Instruments / YSI 438 D (EX) 605 (W) x 910 (H) x 454 mm (D)

237.	Inductively Coupled Plasma Spectrometer	GBC make Fully automated high resolution sequential Inductively Coupled Plasma Optical Emission Spectrometer (ICPOES) with all essential accessories, software and spares for accurate and high precision qualitative, semi-quantitative and quantitative analysis of all possible elements in wave length range 160 to 800 nm at trace level in geological materials' (ores, minerals & rocks etc), Technical specifications of ICP-OES are given below: Mode of Operation: Sequential ICPOES unit includes following sub-assemblies: . Optical system . Excitation source, . Sample introduction system. Detector system~ Instrument control system, . Exhaust system Detailed specifications are given below: **A. Optical System** 1. Thermally regulated +/- 0.1 C nitrogen purged monochromator with Czerny-Turner mounting having focal length of 0.75 meter or higher 2. Spectral range: continuous wavelength coverage from 160 to 800 nm standard or better 3. HOLOGRAPHIC GRATING 1800G/MM or better 4.Optical Detector- Preferably PMT 5.Viewing Position-Computer controlled Radial with automatic alignment in the range 3-20mm above the coil in 0.1 increments 6. High Resolution: 6 pm from 160-200 nm 4^{th} order, 7 pm from 160-267 nm 3^{rd} order, 9 pm .from 160-400 nm 2^{nd} order 18 pm from 400-800 nm 1^{st} order 7. Excitation Source: Inductively coupled argon plasma generated through RF Generator with following specifications Frequency 40.68 MHz RF power computer comtrolled 10W increment from 600W to 1500W Power adjustable through software 8. Computer controlled gas flow. Mass flow regulisation on nebuliser gas. All gases under computer control 10. Inbuilt water cooling system 11. High frequency radiation protection 13. Computer controlled and fully automatic plasma ignition with Plasma Integrity Protection device to protect torch from melt down

	Contd….	C. Sample Introduction System 1. Nebulizer: Concentric type glass nebulizer,and inert HF-resistant nebulizer 2. Spray Chamber: quartz cyclonic spray chamber, inert HF-resistant spray chamber 3. Torch: Low flow, low power, demountable, 4. Peristaltic Pump: Computer-controlled, dual channel 12-roller pump, at variable speed 0-60 rpm. 5-Torch-should be made of quartz single piece and should be vertical(Radial) D. Detector PMT to cover *the* spectral range: 160 nm to 800 nm. Wavelength Calibration Characterize the full wavelength range E. Instrument Control IBM compatible PC based for instrument control, data acquisition, data processing and report generation. Computer system: Latest configuration Pentium IV 21" TFT colour, non-interlaced rnonitor Colour HP DeskJet printer, 8. Windows XP professional operating system 1. Type: Windows based, multi-tasking powerful and flexible software providing full control over all instrument functions (including pump and accessories like auto-sampler) data collection and processing. 2. Analysis Mode-Automatic, Manual and semiquantitative 3. Wavelength database: Built-in wavelength database 4. Parameter control: Computer control of viewing height, viewing centre, power, plasma, auxiliary and nebulizer gas flows,speed, integration time, scan window , PMT voltage, Customizable instrument status display. 5. Correction modes: Fixed point or dynamic background correction. Internal standardization. Inter-element correction. 6. Automatic run options: Automatic plasma shutdown. Automatic saving of all data. Stability check testing 7. Data handling: Report generation, results viewing. Export results to third party software. F. Exhaust system: Custom designed dedicated exhaust G. UPS: Fully compatible UPS to be quoted separately in Indian currency indicating the complete technical specifications and part number. H. Spare consumable and accessories: Essential spares and consumables required for smooth uninterrupted operation of the instrument for a period of one years to be quoted separately. **I. Installation, commissioning and Training:** Bidder shall provide pre-installation advice after finalization of the offer. Successful bidder shall provide comprehensive advanced operation and maintenance training to our scientists/Engineers **J. Typical detection limits in ppb at 3 sigma:** Detection limits should be provided for all elements

238.	In-Situ Sterilizable Fermenter for Microbial Cultivation Pilot Fermenter, Type P Full-sterilizable in situ Basic equipment similar to our description including	**Nidus Exim make** Vessel 150 liters total volume , 100 liters working volume/30 lit., Stainless steel 316L, inside surface Ra 0.8 µm with double jacket for temperature control, longitudinal , viewing glass with vessel illumination through lid , viewing glass, 3 side ports, diameter 25 mm, steriliazable harvest valve, sterilizable sampling valve , Lid - stainless steel 316L with 8 sterile and pressure proof ports, diameter 19 mm, inoculation port and sterile manometer Bearing with double mechanical seal, glycerine overlay, shaft, Drive AC motor as per data sheet, bottom drive with belt Agitation shaft, 2 height-adjustable six-blade stirrers, with baffles, to be dismounted separately Aeration pressure control valve, rotameter, check valve, aeration filter (Ceramic) in housing (stainless steel), all required valves, ring sparger, filter is sterilized separately and independently from fermenter, required air pressure 2 -7 bar, aeration rate 2 vvm, Ventilation reflux cooler, exhaust air filter (Ceramic) in housing (stainless steel), all required valves, bursting disk assembly and pressure holding valve, filter is sterilized separately and independently from fermenter, Temperature Circuit for Sterilization and Cultivation, Steam heat exchanger for heating, circulation pump, piping and all required valve **Utility requirement provided by customer :** • required water supply : 1 central connection, approx. 3-4 barg • required steam supply: 1 central connection, approx. 3-4 barg • required drain : 1 central connection for condensate and heating circuit drain, no backpressure, temperature resistant up to 120 ^{0} C or with cooling water supply, correctly attached
239.	Infrared Thermometer	Make :Everest , Interscience , INC, U.S.A. Model : 6110.04ZL For Agriculture Research With Facility To Display Differential Temperature (Target / Ambient Differential) With Varialble Field Of View Using Variozoom Technology. Temperature Measurement Range : -40^{o} C to 100^{o} C Usable Operating Distance Range: 1" to infinity Optical System : Robust, Aerospace – Quality, Double Coated zinc Selenide Optics per Military Specification MIL-C-13508 Sighting : Vario-Zoom^{TM} Intra Optical Light Sighting : Visible Light Illuminates Field of View Resolution : 0.1^{o} C Accuracy : +/- 0.5^{o} C Repeatability : +/- 0.1^{o} C Spectral Response 8 to 14 microns Emissivity Compensation : Settable from 10% to 99% on Rear Panel Operating Environment : -20^{o} C to 65^{o} C Power Source : Rechargeable Nickel Cadmium Rechargeable Batteries Including Accessories: Carrying Case, Battery Charger

240.	Instron Universal Testing Machine	To test properties of fruits, vegetables, food grains & other bio material. Properties like shrea stress, shear strain compressive strength, tensile strength and yield point, etc. Max. force (Loading Cell Capacity) : 1 KN (for 100 kg load) Complete with computer and accessories. **OR** **BROOKFIELD TEXTURE ANALYSER** **QTS OR CT3 5, 10, 25, 50 KG LOAD RANG** • LOAD RANGE : 0-5KG, 0-10 kg, 0-25 KG, 0-50KG. • LOAD RESOLUTION: 0-5KG, 0-10 kg, 0-25 KG, 0-50KG IN 1G INCREMENTS • LOAD ACCURACY: BETTER THEN 0.1% OF FULL SCALE +/- AT 50KG • LOAD REPEATABILITY: BETTER THEN 0.1% OF FULL SCALE • POSITION RANGE:100 MM-520MM • POSITION ACCURACY: 0.02MM +/-0.1% OF SET DISTANCE • POSITION SETTING RESOLUTION : 0.01MM • POSITION MEASURING RESOLUTION : 0.1MM • TEST SPEED RANGE: 10-1000 MM/MIN0.17-16.7 MM/S • TEST SPEED ACCURACY: BETTER THAN 0.1% OF FULL SCALE • SPEED ACCURACY: BETTER THAN 0.1% OF FULL SCALE • TEST MODES: SINGLE, HOLD,REPEAT/TPA,CYCLE • MAXIMUM NUMBER OF CYCLES: 255 • DATA OUTPUT OPTIONS: ANALOGUE CENTRONICS PRINTER RS232 SERIAL • DATA ACQUISTION: 26 DATA SETS PER SECOND • PROTECTION: LOAD CELL OVERLOAD PROTECED BY ELECTRONIC STOP IN BOTH DIRECTION AND BY MECHANIAL STOP IN COMPRESSION. • APPROVALS: CE MARKED. • SECURITY: SOFTWARE PASSWORD DIFFERENT LEVELS OF USER • ATMOSPHERE: NORMAL LABORATORY CONDITION. PROTECTION IS REQUIRED FOR EXCESSIVE DUST. • OPERATIONG TEMPERATURE:5^{O} C TO 35^{O}C • POWER SUPPLY: 85-264 V AC 50/60Hz • POWER CONSUMPTION: 150W IT IS SUPPLIEDWITH CONTROLLER KAYPAD, RS232 INTERFACE, PRINTER OUTPUT,POSITION CALIBRATION ROD, SET OF EXTENSION RODS, OPERATING MANUAL POWER CODE.

241.	Irrigation Infrastructure	6" dia. borewell, 250 ft depth (2 Nos), submersible pumps 7.5 HP (2 Nos), 3" /4" PVC pipes, sprinklers, 12 nozzels.
242.	Juice Extractor	Model No.1 275 lit/hr Model No.2 100 lit/ hr
243.	Kjeldhal Digestion Block KES 12L	KES L KES L Kelplus microprocessor based 12 place macro block system (for soil, water, food, feed, fertilizer and pesticide sample digestion.
244.	K-Yan Community Computer	DLP display Unit light output 2000 ANSI Lumer, CPU : Intel Pentium Dual Core RAM : 1 GB DDR2, 52 x CD writer –16 x DVD Cpmbo Drive, 160 GB SATA HDD (7200 rpm), Wireless keyboard, Optical mouse, PCI TV Tuner with recording facility LAN + Modem Card, Onboard speakers, Windows XP Home **OR** Model - K-Yan The Community Computer high performance P4 processor. Built in Lan and modem for networking and internet connectivity, built in DVD/Mp3CD writer combo drive, wireless key board with remote control mouse built in TV tuner, integrated stereo speakers, 4 USB ports complete with 1800 lumens DLP projector
245.	LCD Projector	Sony make LCD Projector Sony make: 3 Models VPL-EX 5, VPL-CS-21.

246.	LF Plus 1 KN Universal Pacakage Testing Machine (Packaging)	LLOYD Instruments Model – LF PLUS E- Single Column Capacity- 1KN, Travel- 750 mm, Speed- 0.05 to 1270 mm/min, Max Return Speed- 1270 mm/min, Speed Accuracy- <0.2% at Steady State, Extension Resolution- <2 Microns, Data Sampling Rate- 8KHZ, 32 Bit Microprocessor, 4 line LCD Display, Constant load holding, Data Outputs: Digital - RS232, Grip protection setting in console, Pre-loading of samples and cycling to load or extension limits, Multi-unit display options, Multi-lingual display options, 10 step load calibration facility, Having Facility to store 600 Test Results in the console, 10 Test setup creation facility in the console, Extensometers Inputs- Digital & Analogs, Load Measuring System- EN ISO 7500:2004 class 0.5 ASTM E4, Throat Depth- 179mm, Supply Voltage- 230Vac +/- 10% 50-60 Hz single Phase, Maximum Power Requirements- 500VA Max., A series of highly accurate, interchangeable load cells available for tension, compression and cycling through zero force measurements., Extensive range of grips and fixtures support virtually any type of test. **SOFTWARE FOR DATA COLLECTION SPECIFICATIONS** Nexygen Plus Software Multi- lingual Material testing software, Should supplied with all inclusive package for Tensile, Peel, Seal, BOND, COF, Puncture test with no additional modules, Includes complete ASTM/ISO standard library, Complete suite of test set-ups, Video & Still picture capture system, Security & audit trial utility- Module can also configured to FDA 21 CFR Part 11 Compliance Requirements. Electronic Signature & the ability to restrict user access rights, SPC trend & histogram charts, User Interface customization facility, Data export utility for connection to LIMS & SPC packages, Load System Compliance Compensation, Test Automation & Customization facility, Automatic report generation in Word & Excel format, PASS/FAILED limits, **LOADCELLS SPECIFICATIONS** Capacity 500N, Self identifying XLC loadcell, Load Cell Accuracy <0.5% calibration with certification, Diagnostics mode for loadcell overload facility storage, Load cell protection setting in console & software, The loadcell value & sensitivity factor stored in loadcell plug MANUFACTURER'S ACCREDIATION Manufacturer should have ISO 9000: 2000 for manufacturing *, ISO Accrediation for Software *,CE Accrediation for safety **GRIPS** TG 34- Vice Grip for Tensile, Peel, Seal Test,,COF Testing Grip with Bed & Sled,,TG 73/50 Puncture grip with aperture dia 50mm & probe dia 20mm **CVT** 500 VA CVT **COMPUTER** Suitable computer for Software operation & Windows operation.

247.	LCD Projector	Sony make: 3 Models 1. VPL-EX 5
248.	Laboratory Scale Controlled Atmospheric Facility	Labultima, Mumbai Model- 1. WP-3500/TX-800 Multichannels Wall Mounted Micro Controller 2. OX-100 3 Wire Transmitter For 0 to 25% V/v 3. Tax-100-CO_2 CO_2 Gas Transmitter The system comprises of 4 Nos. of Chambers with M MOC : SS316, Capacity : 1 m3 each Chamber Parameters : Temp : 0 to 10^0C, RH : 65 to 90%, Gas Detection System : O2 detection Range : 0 to 3%, CO2 detection range : 0.5 to 1%
249.	Laboratory Spray Drier	A) Spray drier model No. LCJ 227, Evaporation rate of water 1 liter/hour, air inlet temperature ambient to 250^0C. Heater capacity-1.5 to 2.5 Kwatt, Spray system- Co-current, 0.5/0.7/0.1 mm jet. Spray model No.: LCS – 222, Evaporation rate of water 1 litre/hour, air inlet temperature ambient to 250^0C. Heater capacity-1.5 to 2.5 KW, Spray system- Co-current, 0.5/0.7/0.1 mm jet. **OR** **LABULTIMA Laboratory Spray Drier Model LU 222, LU 228, LU 227 Advanced** Evaporation Rate - 1000 /1500 / 5000 / 10000 ml of water evaporation / hr Drying Chamber diameter – 6″ or 9″, Cyclon Separate System – Twin Cyclon, Air Heater - 1.5 kw made of Incolloy 800, Controlled through microprocessor, Air Compressor - Non Lubricated - two stage compressor The software provided should be in compliance with US FDA 21 CFR Part 11 The system must be provided with RS 485/232 port with two way communication with users PC configuration with a option to operate the spray drier from MMI keypad or from PC configuration. The equipment must be compliant with Health & safety Requirements of the EC Directives as per EN 61010 - 1 : 2001 & EN 61326 - 1 : 1998 standards & should be CE or UL ® Certified.